No. 96-188

In The Supreme Court of the United States

October Term, 1996

General Electric Company, *et al.*,
Petitioners,

v.

Robert K. Joiner, *et al.*,
Respondents.

On Writ of Certiorari to the United States Court of Appeals for the Eleventh Circuit

BRIEF FOR PETITIONERS

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QUESTION PRESENTED

What is the standard of appellate review for trial court decisions excluding expert testimony under *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993)?

LIST OF PARTIES

Petitioners in this Court (defendants in the District Court and appellees in the Court of Appeals) are General Electric Company, Westinghouse Electric Corporation, and Monsanto Company. Respondents in this Court (plaintiffs in the District Court and appellants in the Court of Appeals) are Robert K. Joiner and Karen P. Joiner.

LIST PURSUANT TO RULE 29.6

The court is respectfully referred to the List Pursuant to Rule 29.6 that appears at page ii of the Petition for Certiorari herein.

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BRIEF FOR PETITIONERS

OPINIONS BELOW

The opinion of the District Court is reported at 864 F. Supp. 1310 and appears at P.C.A. 34a.[1] The opinion of the Court of Appeals is reported at 78 F.3d 524 and appears at P.C.A. 1a. The orders of the Court of Appeals denying rehearing and rehearing *en banc* are unreported and appear at P.C.A. 31a and 32a.

JURISDICTION

The judgment of the District Court was entered September 16, 1994. P.C.A. 69a. The judgment of the Court of Appeals was entered March 27, 1996, P.C.A. 1a, and rehearing was denied June 11, 1996, P.C.A. 31a. The petition for certiorari was filed August 5, 1996, and granted March 17, 1997. J.A. 520. This Court has jurisdiction pursuant to 28 U.S.C. § 1254(1).

[1] References to "P.C.A." are to the Appendix to the Petition for Certiorari, to "Br. Opp." to the Brief in Opposition, and to "J.A." to the Joint Appendix. References to "respondent" are to Mr. Joiner.

RULES INVOLVED

Pertinent provisions of the Federal Rules of Evidence, the Federal Rules of Civil Procedure, and rules of evidence of several states are reproduced at pp. 1a-18a, *infra*.

STATEMENT

A. The Complaint.

Respondent, the Chief Electrician for the Water & Light Department of Thomasville, Georgia, was diagnosed with small-cell lung cancer in 1991. J.A. 134, 212, 502. He testified he had smoked cigarettes at the rate of up to a pack a day for at least eight years, beginning when he was a teen-ager and quitting in about 1980 or 1981. J.A. 203-04. Both his parents had smoked; he had lived with them until he was twenty-three. J.A. 203-04; see also J.A. 105, 150-51, 319. His mother had died of lung cancer, as had her brother. J.A. 201-02, 222.

Respondent went to work for the Water & Light Department in 1973, rising by 1985 to Chief Electrician. J.A. 204. One of his duties was to keep the transformers of the city's electrical system in repair. J.A. 205. In addition to paper insulation, the electrical transformers were filled with a "dielectric fluid" of mineral oil, J.A. 366, a mixture of refined petroleum products, which served both as electrical insulation and to reduce heat build-up. J.A. 358-59. Maintaining and repairing the transformers sometimes required draining the mineral oil and drying the coils by slow heat from 1000-watt light bulbs. J.A. 212. Although all the transformers at Thomasville had been manufactured with only mineral oil as dielectric fluid, tests beginning in 1983 showed that in 19.2% of those tested the mineral oil contained PCBs (polychlorinated biphenyls [2]) at levels (50 parts or more per million)

[2] Polychlorinated biphenyls (PCBs) are a group of organic compounds in which biphenyls ($C_{12}H_{10}$) have been chlorinated to varying degrees. Their chemical formula is $C_{12}H_{10-n}Cl_n$ (where n is 1 to 10), and there are 209 possible congeners. Beginning in the 1920's PCBs were put to a number of common industrial uses including electrical applications, sealants, copy paper, printing inks, varnish, paint, and heat-transfer liquids. Like many other chemicals, PCBs in small amounts are detectable at "normal" or "background" levels in most human beings and animals in North America. See generally Kimbrough, *Human Health Effects of Polychlorinated Biphenyls (PCBs) and Polybrominated Biphenyls (PBBs)*, 27 ANN. REV. PHARMACOL. TOXICOL. 87, 87-89 (1987); U.S. DEP'T OF HEALTH, EDUCATION & WELFARE, OCCUPATIONAL EXPOSURE TO POLYCHLORINATED BIPHENYLS (PCBs) 22, 34 (1977); WORLD HEALTH ORGANIZATION, POLYCHLORINATED BIPHENYLS AND TERPHENYLS 19, 39, 195 (2d ed. 1993); J.A. 356-58, 369-70. If eaten, PCBs have an acute toxicity approximately the same as that of ethyl alcohol in beverages, or table salt. CASARETT & DOULL'S TOXICOLOGY 13 (M. Amdur *et al.* 4th ed. 1991); J.A. 375. Most production and distribution of PCBs was prohibited by law effective in 1977. 90 Stat. 2003, 2025 (1976), 15 U.S.C. § 2605(e).

considered significant by the U.S. Environmental Protection Agency. J.A. 389-90; see 40 C.F.R. § 761.3. The source of this contamination was never established. See J.A. 360, 364-65.

After his lung-cancer diagnosis, respondent, who was then aged thirty-seven, filed suit in Georgia state court alleging that "[a]s a result of Plaintiff Robert K. Joiner's exposure to PCBs, he contracted terminal lung cancer," J.A. 21, and seeking compensatory damages exceeding $10,000,000 on each of six counts plus in excess of $20,000,000 punitive damages.[3] Respondent stated that "[t]he nature of my work caused me to inhale PCB fumes and endure the absorption of PCBs through my skin." J.A. 227; see also J.A. 208, 211-13, 228, 230. Named as defendants were petitioners Monsanto Company, which manufactured PCBs until 1977, and General Electric Company and Westinghouse Electric Corporation, which had manufactured mineral-oil transformers, J.A. 19-20, and also until the 1970's some specialized transformers and other equipment with fire-resistant fluid containing PCBs. J.A. 30, 38, 49, 356.[4] The case was

[3] Five counts on behalf of Mr. Joiner alleged negligence, strict liability, and fraud, J.A. 21-25, 27, and a sixth sought damages for loss of consortium on behalf of Mrs. Joiner, J.A. 25-26. Later the complaint was amended to add a claim of battery, also seeking compensatory damages exceeding $10 million. J.A. 74.

[4] Only approximately 0.2% of utility transformers—those designed for specialized uses where fire hazard was a particular concern—had

removed to the United States District Court for the Northern District of Georgia. J.A. 54.

It was undisputed that small-cell lung cancer, with which respondent was diagnosed, J.A. 134, 502, is a disease commonly caused by tobacco smoke, J.A. 105, 109, 261, 276. It was also undisputed that laboratory analysis of respondent's adipose tissue had detected PCBs at a level of only 0.3 to 0.4 parts per million. J.A. 102, 130, 197, 494, which is below that of the average person living in North America (0.5 to 1.5 parts per million). J.A. 115, 154-55, 265-66, 280, 376-77.

B. The Opinions.

The parties informed the District Court that "the central issues in this case relate to causation of Robert K. Joiner's illness," which was a "potentially dispositive issue." J.A. 59. At their joint request, the court stayed discovery on all issues except causation, in anticipation of a motion for summary judgment. J.A. 66. Respondent initially designated Dr. Larry M. Robertson, a toxicologist, as his expert "to testify as to medical causation, specifically, that Plaintiff Robert K. Joiner's exposure to PCBs is a direct and proximate cause of his lung cancer." J.A. 58. However, Dr. Robertson was asked on deposition, "Is there any credible evidence as a scientific probability that PCBs promote . . . small cell carcinoma in the lung in humans," and responded, "I know of none in that context, no, in humans." J.A. 189; see also J.A. 190. Respondent thereafter ceased to rely on Dr. Robertson in opposing summary judgment. J.A. 397. Respondent relied instead on the opinions of Drs. Arnold L. Schecter and Daniel T. Teitelbaum.

Dr. Schecter.—Arnold L. Schecter, M.D., who described his specialty as "preventive medicine" and himself as "uniquely qualified," J.A. 399, 404, conducted a practice focused on persons involved in litigation, particularly claims about PCBs. J.A. 104, 126-27. In an affidavit filed after his deposition, Dr. Schecter stated that "It is my opinion, to a reasonable degree of medical and scientific certainty, that Robert Joiner's exposure to PCB contaminated mineral oil dielectric fluid is the cause of his lung cancer," J.A. 403; that "I eliminated other causes, to a reasonable degree of medical certainty," J.A. 404; and that "[b]ut for Robert Joiner's exposure to PCB contaminated mineral oil dielectric fluid I believe he would not now be suffering from lung cancer," J.A. 403.

Dr. Schecter on deposition had acknowledged that he had met respondent only once, in an attorney's office, and had never conducted a physical examination of him. J.A. 103-05. Dr. Schecter agreed that "Most lung cancer in the United States is caused by cigarette smoking," J.A. 109, explaining that "I believe more likely than not that Mr. Joiner's lung cancer was causally linked to cigarette smoking and PCB exposure." J.A. 107. He stated that "PCBs alone cause cancer," and "I would think that the cigarettes probably served as initiators and that the PCBs, dibenzofurans and dioxins probably more likely than not served as promoters of cancer." J.A. 112.

To support his opinion he cited two studies by a single researcher that had reported that infant mice injected with a known carcinogen and then fed or injected with PCBs had developed liver tumors.[5] J.A. 110.

> "The studies which tell us that PCBs, dioxins and dibenzofurans are promoters of cancer were developed through laboratory animals and we have belief that they are relevant to humans. We test them on animals. We believe that's relevant to humans. . . . I believe that we are in the same kingdom."

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been manufactured with PCBs rather than mineral oil for the dielectric fluid. See 47 Fed. Reg. 17426, 17428 (1982); P.C.A. 85a; J.A. 356, 360-61. None of the transformers at Thomasville was alleged or shown to have been of the kind using any dielectric fluid other than mineral oil.

[5] In the first study suckling mice were injected in their body cavities with N-nitrosodimethylamine, a known carcinogen, after ingesting milk from their mothers, who had been injected with PCBs while pregnant. In the other study infant mice were injected first with N-nitrosodimethylamine and then with a commercial PCB mixture. See J.A. 110, 186-87, 192, 268, 270, 277-78.

J.A. 111. When asked about other mouse experiments that had reported that PCBs actually correlated with reduced incidence of cancer, Dr. Schecter testified "[t]hat could be one interpretation," but dismissed it as perhaps "a statistical fluke." J.A. 121.

Dr. Schecter also rejected other data that did not support his opinion. He acknowledged that the actual analysis of respondent's adipose tissue, by a laboratory selected by respondent, had found a PCB level of only 0.4 parts per million. J.A. 102, 130. He also acknowledged that this did not exceed "what you would expect from an average North American population of healthy adults." J.A. 130, 115-16; see also J.A. 377-78. But Dr. Schecter criticized the laboratory's findings on the basis that he did not believe the result. J.A. 129-30, 123-24, 407. Although he conceded that the mouse experiments had reported liver tumors "in a dose dependent fashion," J.A. 112, he testified that "I have no opinion" about how much PCBs respondent had absorbed, J.A. 118; see also J.A. 128-30. He said he assumed that respondent must have had a high exposure based on "[t]he fact that he worked with these chemicals," J.A. 113, but "I cannot quantify the exact amount." J.A. 115. Ultimately he testified that in his opinion the size of dose did not matter, J.A. 133, and that he believed that PCBs could cause injury even at doses below background levels. J.A. 116.[6]

Although the complaint and amended complaint alleged only PCBs to be the cause of respondent's small-cell lung cancer, J.A. 19-28, 67-77, Dr. Schecter also testified that it could have been caused or promoted by dioxins or furans,[7] which he assumed also had been present even

[6] Dr. Schecter also offered what he termed "[m]y assumption," J.A. 131, that respondent's level might have been higher before medical treatments—although "I can't cite you anything" as support. J.A. 132. Dr. Teitelbaum, respondent's other expert, called such an assumption "pure speculation," "absolutely a guess." J.A. 155; *cf.* J.A. 374-75.

[7] Polychlorinated dibenzodioxins ("PCDDs" or "dioxins") and polychlorinated dibenzofurans ("PCDFs" or "furans"), like

though there was no evidence of their presence in the transformers at Thomasville, J.A. 132-33, or at abnormal levels in respondent's body, J.A. 102, 123, 378-79, 385. Just as with PCBs, Dr. Schecter could identify no studies concluding that furans or dioxins could cause small-cell lung cancer in human beings. J.A. 109-12.

To explain his assumption of exposure to dioxins or furans, Dr. Schecter offered the opinion that PCBs at some high temperature would oxidize and form dioxins or furans; however, he explained that he was not a chemist, J.A. 109, and did not know what temperature would be required, J.A. 122-23, 132. He added that "I don't memorize temperatures, I don't memorize numbers." J.A. 126. In his later affidavit he cited a treatise that he said stated that furans could be produced when PCBs burned, and he said that dioxins and furans had been detected at the scene of a transformer fire in New York. J.A. 405.

Dr. Teitelbaum.—Daniel T. Teitelbaum, M.D., a toxicologist, testified that he heads a corporation with sixteen employees including a full-time paralegal, J.A. 136, 168-69, 170-71, testifies three to four times per month at a charge of $4,000 per day, J.A. 168, "almost always, I would say, for the plaintiff," J.A. 167-68, and has so much business that he does not need to advertise. J.A. 171. Dr. Teitelbaum offered the opinion that respondent's small-cell lung cancer "was caused by or contributed to in a significant degree by the materials with which he worked," J.A. 140, by which he meant, he said, mineral spirits, paints, and mineral oil containing PCBs. J.A. 149-50, 153. However, when asked "is there any study that you know of anywhere in humans that indicate[s] that small-cell, being specific to this diagnosis, lung cancer was caused by PCBs?" he responded:

> "No. It's an impossible research question to investigate, I think, in the first place, and in the second place, there is no such study."

PCBs, are halogenated hydrocarbons. They also are environmentally ubiquitous at background levels, J.A. 266-67, 279, and no studies have concluded that at such levels they are carcinogenic in human beings. J.A. 266-67, 275, 308, 316, 376, 382.

J.A. 169. His answer was the same when asked whether there was any study showing that PCBs could contribute to or promote such cancer. J.A. 170.

Dr. Teitelbaum agreed that respondent's actual tested PCB level was not above the normal background range. J.A. 154-55. But he opined that "I don't think that there is any way of relating the quantity of PCBs measured in anything with any outcome." J.A. 153.[8] He noted "some discrepancy among" respondent's "various medical records," J.A. 144; some prepared prior to the litigation showed respondent to have smoked up to two packs of cigarettes per day for fifteen years, J.A. 106, 134, 143-44, 173, 265, 313. Dr. Teitelbaum acknowledged that respondent's history of smoking, having lived with smokers, and lung cancer of close relatives were "part of the mix." J.A. 146-47, 150-51. But when asked whether respondent's cancer was initiated by respondent's cigarette smoking, he responded that "That would be purely speculative." J.A. 148.

Asked for epidemiological evidence to support his opinion, he testified that, although he believed researchers are "willing now to take the position that PCBs are human carcinogens,"

> "I don't think that they would—any of them would be willing to say that they have evidence, convincing evidence, that PCBs cause any single kind of cancer."

J.A. 161. What he called "the best study" suggesting causation, J.A. 161, he acknowledged, was "not statistically significant," J.A. 163, but "the simple fact that it did not reach statistical significance isn't enough to convince me the study is not right," J.A. 164.[9]

[8] A few minutes earlier, however, Dr. Teitelbaum had testified that "I am a firm believer in the concept that if there is more carcinogen exposure, there is more risk of cancer." J.A. 147. *Cf. Sweger* v. *Texaco, Inc.*, 930 F.2d 35 (table), 1991 U.S. App. Lexis 8572 (10th Cir. 1991) (affirming district court's rejection of opinion of Dr. Teitelbaum that exposure to a single molecule of motor oil could have caused cancer).

[9] Dr. Teitelbaum also referred to "the expert committee that IARC [International Agency for Research on Cancer] had together,

When asked whether any animal study of PCBs had reported small-cell lung cancer, he responded that

> "I don't think there's an analogy in animals that would be relevant, so I can't point to such a study."

J.A. 170. He cited the same two mouse studies relied on by Dr. Schecter as showing that PCBs were "known to be an animal carcinogen." J.A. 147, 158-60. But, he concluded,

> "so that's as far as we can go. Whether the same thing would be present in other animals, I can't conclude from her study . . . ."

J.A. 158; see also J.A. 160.

Dr. Teitelbaum assumed that respondent had been exposed to PCBs because it was "reasonable to assume," J.A. 142, "a reasonable assumption," J.A. 143, J.A. 145, 155-56. He also, like Dr. Schecter, "assume[d] that there was some furan present, that there may have been some dioxin present." J.A. 143. However, he had "no quantitative analyses . . . that answer how much and when," *id.*, and questions about possible formation of other chemicals from PCBs he said were "outside the scope of my expertise." J.A. 156. Nevertheless, he later opined that furans must have been produced because fumes had been observed and some transformers brought for repair had been damaged in fires. J.A. 406.

C. Challenge Under Rule 702.

Petitioners argued to the District Court that "[a]s admitted by plaintiffs' own experts, their opinions are not

and their conclusion was there's enough evidence to say that it's probably a human carcinogen, there is not enough evidence to say that is proved, and I think I would have no problem accepting that." J.A. 165. An epidemiologist and a toxicologist explained that even that statement was only by a "workshop" group which had not presented any scientific findings, and that the IARC of the World Health Organization was not a body that took positions on scientific issues. J.A. 236-37, 278. The same 1993 World Health Organization document that mentioned the workshop group advised that "Overall, there is reason to exercise caution in extrapolating the available animal data on the carcinogenic potential of PCBs to humans." WORLD HEALTH ORGANIZATION, *supra* n.2, at 37; *cf. id.* at 478.

based on credible scientific evidence and are therefore speculative," J.A. 387, and also depended on unsupported assumptions that "did not 'fit' the facts of the case." J.A. 388. Asking exclusion of the opinions for failure to satisfy the standards for admissibility of Fed. R. Evid. 702 as explained in *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), petitioners moved for summary judgment. J.A. 98.

To confirm further the absence of any scientific support for the causation opinions, a toxicologist, William J. Waddell, M.D., of the University of Louisville Medical School, testified (as had Dr. Teitelbaum, J.A. 158, 170, and Dr. Robertson, J.A. 188-90) that scientific methodology does not permit the conclusion from two studies of infant mice injected with a known carcinogen that PCBs are capable of causing or promoting small-cell lung cancer in human beings. J.A. 265, 267-68, 270. He also testified, based on review of the scientific literature, that "[t]here is no evidence that PCBs cause cancer" in human beings, J.A. 271, "no information in humans that PCBs cause cancer of the lung at whatever dose." J.A. 279. By contrast, he noted, "I don't think that there is any reasonable scientist that would deny that cigarette smoking causes lung cancer." J.A. 273; see also J.A. 276, 279.

An epidemiologist, Philip Cole, M.D., Dr.P.H., testified after reviewing the existing studies and data that "Here you have a body of evidence that doesn't give the slightest inkling that these things [PCBs] cause human cancer," J.A. 238, adding that he knew of no scientist who believed that they do, J.A. 234-35. On the other hand, epidemiological data show "there's a massive association between SCLC [small-cell lung cancer] and cigarette smoking." J.A. 239.

Finally, Professor William Charles Bailey, M.D., of the University of Alabama Medical School, a pulmonary specialist, testified that "I looked specifically, is there really even any circumstantial evidence that small cell cancer, which is what this man has, could be caused by PCB and

found no evidence, even circumstantial or partial or, you know, inconclusive that that might be considered." J.A. 307; see also J.A. 317, 320. Nor, he testified, did any scientific evidence exist that dioxins or furans could be such a cause, an observation confirmed by Drs. Waddell and Cole. J.A. 233, 267, 308, 316. He explained that the method by which animal studies are used in medical science is that "before you can really draw any conclusions about humans, you have to have data on humans, obviously, because they're different." J.A. 306. Referring to "the overwhelming evidence that small cell cancer is exclusively caused by cigarette smoking," he explained that "it's so clear that small cell cancer is caused by cigarette smoking, and there was not even any circumstantial evidence in the literature that it might be related to PCB." J.A. 308; see also J.A. 309-10, 317, 348, 350-51. Dr. Bailey also noted epidemiological data that 4,000 to 5,000 Americans aged in their thirties or younger die of lung cancer each year. J.A. 311, 315, 354.

D. The District Court's Ruling.

On the issue of PCB exposure, the District Court ruled for respondent, holding that "the court finds that a genuine dispute exists over whether Joiner was exposed to PCBs." P.C.A. 44a. But it held that under Rule 702 respondents had failed to present admissible evidence of causation, or of exposure to furans or dioxins. P.C.A. 49a, 51a, 68a.

1. *Absence of Epidemiological Evidence.*—Although some courts have held epidemiological studies essential to support opinions of causation of human disease,[10] the District Court ruled that "the absence of an epidemiological study in Plaintiffs' favor does not automatically foreclose their action." P.C.A. 58a. But the District Court found

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[10] *E.g.*, *In re Joint E. & S. Dist. Asbestos Litigation*, 52 F.3d 1124, 1128 (2d Cir. 1995); *Brock* v. *Merrell Dow Pharmaceuticals, Inc.*, 874 F.2d 307, 313 (5th Cir. 1989), *modified*, 884 F.2d 166 (5th Cir. 1989), *cert. denied*, 494 U.S. 1046 (1990); *In re "Agent Orange" Product Liab. Litigation*, 611 F. Supp. 1223, 1239 (E.D.N.Y. 1985), *aff'd*, 818 F.2d 187 (2d Cir. 1987), *cert. denied sub nom. Lombardi* v. *Dow Chem. Co.*, 487 U.S. 1234 (1988); *cf.* J.A. 274-76.

that the epidemiological studies relied on by respondent "in every case . . . are either equivocal or not helpful" and "simply do not support the experts' position." P.C.A. 63a, 67a.[11]

2. *Absence of Relevant Animal Studies.*—The District Court specifically declined to hold that animal studies could never support an opinion of disease causation in human beings. P.C.A. 60a, 62a.[12] It held, however, that the two studies of mice cited by Drs. Teitelbaum and Schecter lacked the requisite "fit" under Rule 702 to support the opinion that PCBs had caused respondent's small-cell lung cancer. P.C.A. 62a. It noted that there were only two studies, concededly they were only preliminary, P.C.A. 61a, J.A. 186-87, 160, that they involved applica-

[11] The District Court noted, for example, that one of the epidemiological studies itself advised that "[t]he numbers were small, the value of the risk estimate was not statistically significant, and such risk had never been suggested before." P.C.A. 63a. In the second the authors also "specifically stated that '[w]hile many of the cancer-specific SMRs exceed 100, none are statistically significant.'" P.C.A. 64a. The third study did not involve exposure to PCBs at all. P.C.A. 64a-65a. The fourth was not an epidemiological study but a preliminary analysis, and involved not inhalation but ingestion, of toxic rice oil containing furans and other chemicals in addition to PCBs. P.C.A. 65a-66a. Respondent's own expert had testified it was "not very convincing." P.C.A. 66a, quoting J.A. 161.

[12] *But see, e.g., Lynch* v. *Merrell-National Labs.*, 830 F.2d 1190, 1194 (1st Cir. 1987) (animal studies "do not have the capability of proving causation in human beings in the absence of any confirmatory epidemiological data"); *Viterbo* v. *Dow Chem. Co.*, 826 F.2d 420, 424 (5th Cir. 1987) (holding animal study cannot support opinion of human carcinogenicity); *In re "Agent Orange" Product Liab. Litigation, supra*, 611 F. Supp. at 1241 (holding animal studies unacceptable under Rule 703 as basis for opinion of human causation, and inadmissible under Rules 401, 402 and 403); *Bell* v. *Swift Adhesives, Inc.*, 804 F. Supp. 1577, 1580 (S.D. Ga. 1992) ("Nothing in the record persuades this Court to depart from the precedent set in Georgia federal district courts as well as in other circuits by viewing animal studies favorably"). "In 'toxic tort' cases, courts have generally insisted on epidemiological data . . . . Animal studies, particularly those with questionable relevance to humans, carry relatively little weight." K. FOSTER & P. HUBER, JUDGING SCIENCE 133 (1997).

tion of massive doses of PCBs to suckling mice that already had been injected with a known carcinogen, P.C.A. 59a, 61a, J.A. 193-94, and that nevertheless none of the mice developed small-cell lung cancer. P.C.A. 59a, J.A. 189. It found that in medical methodology the fact that a substance can cause some form of cancer in mice may indicate a reason for future study, but is not regarded by scientists as establishing that it is carcinogenic in human beings. P.C.A. 61a-62a; see J.A. 111, 169-70, 265, 267-70, 306.

3. *Absence of Evidence of Other Chemicals.*—The court held that even assuming that other chemicals could be formed in some conditions from PCBs,[13] the District Court held "[i]t is also Plaintiffs' task to link that evidence to the facts of this case, i.e., to show some credible evidence that the City's transformers were exposed to a temperature hot enough to generate furans." P.C.A. 48a. The Court noted that there had been no data at all that furans or dioxins had been found in any of the transformers with which respondent worked; that the laboratory tests of respondent's tissue had shown no abnormal level of dioxins, and had found no detectable level of furans in his body at all. P.C.A. 44a-45a; see J.A. 117-18, 197, 407. The court held it inadequate simply to say that some transformers sent for repairs had experienced fires, or that when some were heated by light bulbs, fumes had been observed. P.C.A. 48a; see J.A. 212-13. "Thus, the testimony of Plaintiffs' experts manifestly does not fit the facts of this case, and is therefore inadmissible." P.C.A. 57a.

4. *"The Analytical Gap."*—Emphasizing that to satisfy Rule 702 "[t]he basic methodology employed to reach . . .

[13] The only expert testimony from chemists was that no evidence existed that PCDDs (dioxins) could be formed from PCBs under any conditions, J.A. 360, 367, 370, that formation of PCDFs (furans) even at extremely high temperatures from pure PCBs was unlikely even in insignificant amounts, J.A. 361, 365, 371, and that the dilution of tiny amounts of PCBs in mineral oil would make such formation "extraordinarily unlikely," J.A. 365; see J.A. 361-62, 371. The only test of mineral oil from a transformer at Thomasville that had caught fire showed only 26 ppm (parts per million) PCBs. J.A. 225-26. See pp. 36-37, *infra*.

a conclusion [must be] sound," the District Court concluded that "the studies simply do not support the experts' position that PCBs *more probably than not* promoted Joiner's lung cancer;" "[t]he analytical gap between the evidence presented and the inferences to be drawn on the ultimate issue . . . is too wide." P.C.A. 67a (emphasis in original).[14] It pointed out that even Dr. Teitelbaum testified that "he was aware of no studies which show that PCBs cause, contribute, or promote small cell lung cancer in humans." P.C.A. 62a n.25, citing J.A. 169-70. It noted that Dr. Schecter could cite no authority except the two mouse studies, which had not observed small-cell lung cancer, and that even Dr. Teitelbaum, confirmed by Drs. Waddell and Bailey, had testified that "I don't think there's an analogy in animals that would be relevant." J.A. 170; see J.A. 265, 270, 306. Holding that "the opinions of Plaintiffs' experts do not rise above 'subjective belief or unsupported speculation,'" P.C.A. 67a (quoting *Daubert*, 509 U.S. at 590), the District Court excluded the opinions and granted summary judgment. P.C.A. 68a.[15]

E. The Court of Appeals' Reversal.

In a 2-1 decision, the Court of Appeals reversed. It began by announcing that

> "Because the Federal Rules of Evidence governing expert testimony display a preference for admissibility, we apply a particularly stringent standard of review to the trial judge's exclusion of expert testimony."

P.C.A. 4a. As authority it cited the opinion of the Third Circuit in *In re Paoli R.R. Yard PCB Litigation*, 35 F.3d 717, 750 (3d Cir. 1994), *cert. denied sub nom. General*

[14] Quoting in part *Wells* v. *Ortho Pharmaceutical Corp.*, 788 F.2d 741, 745 (11th Cir.), *cert. denied*, 479 U.S. 950 (1986), and *Turpin* v. *Merrell Dow Pharmaceuticals, Inc.*, 959 F.2d 1349, 1360 (6th Cir.), *cert. denied*, 506 U.S. 826 (1992).

[15] The court added that even if the opinions were admitted, "no reasonable juror could find that PCBs caused Joiner's lung cancer given the flawed nature of Plaintiffs' experts[']' opinions." P.C.A. 67a n.29; *cf. Daubert*, 509 U.S. at 596.

Elec. Co. v. *Ingram*, 115 S. Ct. 1253 (1995). Using that "particularly stringent standard of review," the Court of Appeals proceeded to examine the record itself.

Turning first to Rule 702's requirement of reliability, the Court of Appeals held that "the extensive experience and specialized expertise of each of these experts augment the reliability of their reasoning and methodology," P.C.A. 11a, and that "each utilized scientifically reliable methods," *id.* at 10a. It accepted the statements in Dr. Teitelbaum's post-deposition affidavit that "I utilized traditional medical assessment techniques" and "I also relied upon my extensive experience." *Id.* at 9a; see J.A. 450. It also pointed out, citing another post-deposition affidavit, that "[i]n arriving at his opinion, Schecter claimed to have eliminated other potential causes of Joiner's lung cancer to a reasonable degree of medical certainty." P.C.A. 10a; see J.A. 404. The Court of Appeals emphasized (without examining the contents) that "the Joiners' experts discussed the studies of at least thirteen different researchers." P.C.A. 12a. With respect to the two mouse studies, it held that "[t]he number of studies is irrelevant," that "it is improper to find research unreliable solely because it uses animal subjects," *id.*, and that unless the studies themselves were somehow flawed, conclusions Dr. Schecter said he drew from them were admissible. *Id.* at 13a-14a.

The Court of Appeals added that the District Court should not have excluded the opinions of the two medical doctors that assumed exposure of respondent to dioxins or furans. The Court of Appeals said that it had been petitioners' burden to present evidence of the temperatures of the drying process and of a fire, and to show that such chemicals had not been produced. P.C.A. 15a-16a. The Court of Appeals also said that furans might have been formed when one transformer had been struck by lightning. *Id.* at 16a.[16]

[16] Judge Birch concurred briefly, urging that it would be better for trial courts to appoint "a competent, independent and philosophically neutral Rule 706 expert." P.C.A. 17a.

F. The Dissent.

Judge Smith in dissent reasoned that there should be "deference to the trial court's admissibility determinations," P.C.A. 20a n.1, and that

> "an expert's testimony does not 'assist' the trier of fact if the expert does not explain the steps he took to reach his conclusion. We should not require the trier of fact to accept blindly the expert's word to fill the analytical gap between proffered 'scientific knowledge' and the expert's conclusions. Therefore, the trial court 'gatekeeper' has broad discretion to decide whether a leap of faith across the analytical gap is so great that, without further credible grounds, the testimony is inadmissible."

P.C.A. 17a-18a. "It is incumbent on the proponent of scientific evidence to fill the analytical gap between a proffered study and the particular facts of the case (i.e., 'fit')." P.C.A. 26a. The dissent challenged the majority's reliance on general references to unsupporting epidemiological studies, P.C.A. 28a, and pointed out that "[t]he trial court's ruling was not that animal studies are inadmissible *per se*, but that Mr. Joiner's general response that experts generally rely on animal studies fails to show the reliability and 'fit' of these particular animal studies." P.C.A. 25a. Regarding dioxins or furans, the dissent explained that "I am not prepared to reverse the trial court on this issue because it is Mr. Joiner who has the burden of proving admissibility." P.C.A. 23a. "[S]ifting through the expert's testimony is a crucial 'gatekeeping' function," P.C.A. 22a, and "I would approve the trial court's step-by-step approach," P.C.A. 30a. "[A]n expert may not bombard the court with innumerable studies and then, with blue smoke and sleight of hand, leap to the conclusion." P.C.A. 22a.

SUMMARY OF ARGUMENT

The Court of Appeals here embraced a new "particularly stringent" standard of review under Rule 702 that is inconsistent with the Federal Rules and with this Court's holdings that "A district court is accorded a wide discretion in determining the admissibility of evidence under the Federal Rules." *United States* v. *Abel*, 469 U.S. 45, 54 (1984). "[T]he District Court has wide discretion in its determination to admit and exclude evidence, and this is particularly true in the case of expert testimony." *Hamling* v. *United States*, 418 U.S. 87, 108 (1974).

Rule 702 of the Federal Rules of Evidence requires that "the trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable." *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 589 (1993). Rule 702 assigns district judges "a gatekeeping role." *Id.* at 597; see also *id.* at 600 (Rehnquist, C.J., concurring and dissenting) ("I do not doubt that Rule 702 confides to the judge some gatekeeping responsibility . . . .").

If a district court ignores or misconstrues the governing law—as by, for example, failing to follow Rule 702's criteria of reliability and relevance, as set forth by this Court in *Daubert*—then it has committed an error of law, subject to plenary review and reversal on appeal. See, *e.g.*, *Cooter & Gell* v. *Hartmarx Corp.*, 496 U.S. 384, 402 (1990); *Icicle Seafoods, Inc.* v. *Worthington*, 475 U.S. 709, 714 (1986). But in the ordinary case, when as here the prescribed legal rule has been applied, the standard of appellate review of evidentiary rulings is deferential, reflecting a district court's "wide discretion."

Ten circuits since *Daubert* have reaffirmed that rulings admitting or excluding evidence under Rule 702 will be reversed only for "abuse of discretion" or "manifest error." The Eleventh Circuit here, adopting a 1994 decision by the Third Circuit, departed from the established standard to apply a new, judicially created, "particularly stringent" review—but only for rulings that exclude proffered opinions and lead to summary judgment. Such a new result-

oriented standard of review has no grounding in the text or history of Rules 104 or 702. It is contrary to more than a century of decisions by this Court and others according broad deference to trial courts' rulings on expert testimony. And it undermines the command of Rule 702, which this Court recognized in *Daubert*, that district courts are to exercise a "gatekeeping" function, to protect the factfinding process from opinions that are not reliable as science or do not fit the facts of the case being adjudicated.

Such a novel one-way result-oriented standard of review also bears no relation to the criteria for determining standards of review that this Court has set forth repeatedly: applicable text; historical practice; and functional appropriateness, including which level of court is best situated to decide, and whether detailed review by appellate courts would make sense in terms of their function of clarifying legal doctrine. To invent yet another standard of review would further burden appellate courts, while ignoring this Court's caution that it is "undesirable to make the law more complicated by proliferating review standards without good reasons." *First Options of Chicago, Inc.* v. *Kaplan*, 115 S. Ct. 1920, 1926 (1995). It would not improve results; in the present case, for example, the District Court had overwhelming basis for ruling as it did, and the Court of Appeals did not master the record. See pp. 35-38, *infra*. And by operating only when opinion testimony is excluded and summary judgment results, this one-way standard would undermine the policy of Rule 56, Fed. R. Civ. P., that summary judgment is not to be disfavored. See *Celotex Corp.* v. *Catrett*, 477 U.S. 317, 327 (1986). Asymmetrical "particularly stringent" review not only is unsupported in the Federal Rules and contrary to *Celotex* and *Daubert*, but also would ignore the even-handedness that normally characterizes this country's judicial procedure.

ARGUMENT

I. THE FEDERAL RULES AND WELL-ESTABLISHED PRECEDENT CALL FOR BROAD DISCRETION FOR DISTRICT COURT RULINGS ON ADMISSIBILITY OF EXPERT TESTIMONY.

A. The Federal Rules of Evidence Assign the District Courts Broad Discretion To Rule on Admissibility of Expert Testimony.

1. *Rule 104(a) Provides for Broad Discretion.*

Admissibility determinations for scientific opinions are preliminary matters decided by the trial judge pursuant to Rule 104(a) of the Federal Rules of Evidence.[17] *Daubert*, 509 U.S. at 592 & n.10. Rule 104(a) is remarkable for the exceptional latitude it allows trial judges in ruling on admissibility of testimony. It provides simply that such questions "shall be determined by the court." It sets no particular procedures or methods limiting how the trial court arrives at such rulings; in fact, the Rule goes out of its way even to provide that except as to privileges, a district court in making admissibility rulings "is not bound by the rules of evidence."

> "The Rule on its face allows the trial judge to consider any evidence whatsoever, bound only by the rules of privilege."

Bourjaily v. *United States*, 483 U.S. 171, 178 (1987). *Accord*, Fed. R. Evid. 1101(d).

"F.R.E. 104 retains the principles . . . developed at common law." *United States* v. *Sliker*, 751 F.2d 477, 498 (2d Cir. 1984) (Friendly, J.), *cert. denied*, 470 U.S. 1058, 471 U.S. 1137 (1985). "[T]he common law rule was that the judge and not the jury should decide 'any preliminary questions of fact, however intricate, the solution of which may be necessary to enable him to de-

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[17] Fed. R. Evid. 104(a) provides:

"Preliminary questions concerning the qualification of a person to be a witness, the existence of a privilege, or the admissibility of evidence shall be determined by the court . . . . In making its determination it is not bound by the rules of evidence except those with respect to privileges."

termine . . . the admissibility' of evidence." 751 F.2d at 497, quoting J. THAYER, PRELIMINARY TREATISE ON EVIDENCE 258 n.3 (1898) (quoting *Gorton* v. *Hadsell*, 9 Cush. 508, 511 (Mass. 1852)).

A provision that "emphasizes the fact that the determination is for the district court to make . . . thus suggests some deference to the district court upon appeal." *Pierce* v. *Underwood*, 487 U.S. 552, 559 (1988). See also, *e.g.*, *Wilton* v. *Seven Falls Co.*, 115 S. Ct. 2137, 2144 (1995) (abuse-of-discretion standard adopted because in applying Declaratory Judgment Act it is "more consistent with the statute to vest district courts with discretion in the first instance"); *Koon* v. *United States*, 116 S. Ct. 2035, 2046 (1996) ("A district court's decision to depart from the [Sentencing] Guidelines . . . will in most cases be due substantial deference, for it embodies the traditional exercise of discretion by a sentencing court"). What a provision embodying trial-court discretion does not contemplate is for a court of appeals to "substitute[] its own judgment for that of the District Court." *Piper Aircraft Co.* v. *Reyno*, 454 U.S. 235, 257 (1981) (*forum non conveniens* determination). *Cf.* also, *e.g.*, *Braun* v. *Lorillard Inc.*, 84 F.3d 230, 237 (7th Cir.) (exclusion of hearsay under Rule 803 reviewed for abuse of discretion), *cert. denied*, 117 S. Ct. 480 (1996); *United States* v. *Matta-Ballesteros*, 71 F.3d 754, 767 (9th Cir. 1995) (same), *amended*, 98 F.3d 1100 (9th Cir. 1996), *cert. denied*, 117 S. Ct. 965 (1997).

2. Rule 702 Provides for Broad Discretion.

Rule 702 as well speaks to this issue. Rule 702 allows a qualified witness to offer opinions only "[i]f *scientific*, technical, or other specialized *knowledge* will *assist* the trier of fact." (Emphasis supplied.)

> "[T]he Rules of Evidence—especially Rule 702—do assign to the trial judge the task of ensuring that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand."

Daubert, 509 U.S. at 597. "We are confident that federal judges possess the capacity to undertake this review." *Id.* at 593.

"The *Daubert* Court significantly changed the standards governing the admissibility of scientific evidence by expanding district courts' discretions to evaluate the reliability and relevance of contested evidence." *In re Joint Eastern & Southern Dist. Asbestos Litigation*, 52 F.3d 1124, 1132 (2d Cir. 1995). *Daubert* "shifted to the trial judge the responsibility for keeping 'junk science' out of the courtroom." *Wilson* v. *City of Chicago*, 6 F.3d 1233, 1238 (7th Cir. 1993), *cert. denied*, 511 U.S. 1088 (1994). See also American College of Trial Lawyers, *Standards and Procedures for Determining the Admissibility of Expert Evidence After Daubert*, 157 F.R.D. 571, 571 (1994) ("*Daubert* clearly requires trial judges to subject expert evidence to more penetrating pretrial scrutiny"); Rehnquist, *1993 Year-End Report on the Federal Judiciary*, 17 AM. J. TRIAL ADVOC. 571, 579 (1994) ("the *Daubert* case . . . vested more responsibility in the trial judge for assessing the reliability and relevance of scientific expert testimony").

This Court in *Daubert* several times emphasized that

> "The inquiry envisioned by Rule 702 is, we emphasize, a flexible one."

Id. at 594; see also *id.* at 593, 597. Such flexibility for the trial court's exercise of its assignment, mandated by Rule 702, implies a deferential standard for the appellate tribunal that reviews the trial court's rulings. "[W]e adopted deferential review to afford 'the district court the necessary flexibility to resolve questions involving multifarious, fleeting, special, narrow facts that utterly resist generalization." *Koon* v. *United States*, *supra*, 116 S. Ct. at 2047 (internal quotation marks omitted), quoting *Cooter & Gell* v. *Hartmarx Corp.*, *supra*, 496 U.S. at 404, *Pierce* v. *Underwood*, *supra*, 487 U.S. at 561-62, and Rosenberg, *Judicial Discretion of the Trial Court, Viewed From Above*, 22 SYRACUSE L. REV. 635, 662 (1971). Admissibility rulings commonly "involve 'fact-

intensive, close calls.'" *Cooter & Gell, supra,* 496 U.S. at 404, quoting C. SHAFFER & P. SANDLER, SANCTIONS: RULE 11 AND OTHER POWERS 15 (2d ed. 1988).

B. Appellate Courts Traditionally Have Allowed Broad Discretion to Trial Court Rulings on Admissibility of Expert Testimony.

1. *This Court Has Applied a "Manifestly Erroneous" Standard.*

In determining "the question of what is the standard of appellate review" for trial court determinations, "[f]or most . . . the answer is provided by a long history of appellate practice." *Pierce* v. *Underwood, supra,* 487 U.S. at 558; see also *Miller* v. *Fenton,* 474 U.S. 104, 115 (1985). For more than a century the control of expert testimony—whether the witness is qualified and whether his or her opinions will assist the trier of fact—has been recognized by this Court, as it was at common law, as a matter for trial judges' broad discretion.

> "Whether a witness called to testify to any matter of opinion has such qualifications and knowledge as to make his testimony admissible is a preliminary question for the judge presiding at the trial; and his decision of it is conclusive, unless clearly shown to be erroneous in matter of law."

Stillwell & Bierce Mfg. Co. v. *Phelps,* 130 U.S. 520, 527 (1889).

> "Cases arise where it is very much a matter of discretion with the court whether to receive or exclude the evidence; but *the appellate court will not reverse in such a case, unless the ruling is manifestly erroneous.*"

Spring Co. v. *Edgar,* 99 U.S. 645, 658 (1879) (emphasis supplied). "How much knowledge a witness must possess before a party is entitled to his opinion as an expert is a matter which, in the nature of things, must be left largely to the discretion of the trial court, and its ruling thereon will not be disturbed unless clearly erroneous." *Chateaugay Ore & Iron Co.* v. *Blake,* 144 U.S. 476, 484 (1892). See also, *e.g., Gila Valley, G. & N. Ry.* v. *Hall,* 232 U.S. 94, 103 (1914); *Inland & Seaboard Coasting Co.* v. *Tolson,* 139 U.S. 551, 559 (1891); *Montana Ry.* v. *Warren,* 137 U.S. 348, 353 (1890); *cf. Spiller* v. *Atchison, T. & S.F. Ry.,* 253 U.S. 117, 130 (1920).

That longstanding rule was reiterated in, *e.g., Salem* v. *United States Lines Co.,* 370 U.S. 31 (1962), and *Hamling* v. *United States,* 418 U.S. 87 (1974). "[T]he trial judge has broad discretion in the matter of the admission or exclusion of expert evidence, and his action is to be sustained unless manifestly erroneous." *Salem,* 370 U.S. at 35. "[T]he District Court has wide discretion in its determination to admit and exclude evidence, and this is particularly true in the case of expert testimony." *Hamling,* 418 U.S. at 108. "Petitioners have very much the laboring oar in showing that such rulings constitute reversible error . . . ." *Id.* at 124.

Prior to *Daubert* there was no doubt as to the standard of appellate review of rulings admitting or excluding expert testimony. The standard was expressed either as "manifest error" or "abuse of discretion."[18] There is not a bit of evidence that the drafters of the Federal Rules, this Court, or Congress intended to change it. When a "common-law precept" is "entirely consistent with" a rule's "general requirement," then it is "unlikely that the drafters had intended to change the rule." *Daubert, supra,* 509 U.S. at 588. See also, *e.g., United States* v. *Abel, supra,* 469 U.S. at 50 ("With this state of

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[18] See, *e.g., United States* v. *Butt,* 955 F.2d 77, 85 (1st Cir. 1992); *United States* v. *Cruz,* 981 F.2d 659, 662 (2d Cir. 1992); *United States* v. *Wright-Barker,* 784 F.2d 161, 169 n.6 (3d Cir. 1986); *Friendship Heights Assocs.* v. *Koubek,* 785 F.2d 1154, 1159 (4th Cir. 1986); *Christophersen* v. *Allied-Signal Corp.,* 939 F.2d 1106, 1109 (5th Cir. 1991), *cert. denied,* 503 U.S. 912 (1992); *United States* v. *Price,* 995 F.2d 729, 731 (7th Cir. 1993); *Cashman* v. *Allied Prods. Corp.,* 761 F.2d 1250, 1254 (8th Cir. 1985); *United States* v. *Cuevas,* 847 F.2d 1417, 1429 (9th Cir. 1988), *cert. denied,* 489 U.S. 1012 (1989); *Broadcort Capital Corp.* v. *Summa Med. Corp.,* 972 F.2d 1183, 1194-95 (10th Cir. 1992); *United States* v. *Hall,* 969 F.2d 1102, 1109-10 (D.C. Cir.), *cert. denied,* 506 U.S. 980 (1992); *Milmark Services* v. *United States,* 731 F.2d 855, 860 (Fed. Cir. 1984).

unanimity confronting the drafters of the Federal Rules of Evidence, we think it unlikely that they intended to scuttle entirely the evidentiary availability of cross-examination for bias"); *Tome* v. *United States*, 513 U.S. 150, 160 (1995) (Fed. R. Evid. 801(d)(1)(B) "was intended to carry over the common-law premotive rule"); *United States* v. *Mezzanatto*, 513 U.S. 196, 202 (1995) (interpreting Fed. R. Evid. 410 in light of practice "at the time of the adoption of the Federal Rules of Evidence"); *Green* v. *Bock Laundry Machine Co.*, 490 U.S. 504, 521 (1989); *Midlantic Nat'l Bank* v. *New Jersey Dep't of Envtl. Protection*, 474 U.S. 494, 501 (1986). Indeed, to alter the established standard of review by decision, in the face of such an established body of law, would be inconsistent with the rule-making process prescribed for this Court and the Congress. See 28 U.S.C. §§ 2072-74.

2. *The Federal Courts of Appeals After* Daubert *Have Continued To Apply a Standard Recognizing Broad Discretion.*

Since *Daubert*, nearly all the federal courts of appeals have considered the standard of appellate review again. Overwhelmingly, without difficulty or controversy, they have concluded that there is no basis to alter the familiar standard that allows very broad discretion in admissibility rulings for the trial judge. "In reviewing the district court's fact-specific application of the approach mandated by *Daubert*, we must apply a deferential standard of review." *Deimer* v. *Cincinnati Sub-Zero Prods., Inc.*, 58 F.3d 341, 344 (7th Cir. 1995). "*Daubert* requires district judges to act as gatekeepers to ensure that scientific evidence is both relevant and reliable. . . . Their decisions, therefore, are properly reviewed under the traditional abuse of discretion standard." *Duffee* v. *Murray Ohio Mfg. Co.*, 91 F.3d 1410, 1411 (10th Cir. 1996). Six circuits, in accordance with their own precedents and this Court's decisions, hold that district court rulings applying *Daubert* will be reversed only if "manifestly erroneous."[19] Four other circuits simply describe the standard as "abuse of discretion," often emphasizing the great latitude accorded the trial court.[20] It has been observed that as a practical matter, either formulation may amount to the same thing: a very deferential standard of review, under which "the trial judge's ruling, whether excluding or admitting expert evidence, will not be disturbed, except in rare instances." 4 WEINSTEIN'S FEDERAL EVIDENCE § 702.02[2] (J. McLaughlin 2d ed. 1997).

Respondents themselves, in opposing certiorari and urging that the present decision should be ignored, argued to this Court that "all circuits . . . apply the same standard when reviewing a district court's decision on the admission of expert testimony, using the description of 'abuse of discretion' and 'manifestly erroneous' interchangeably—indeed, often together." Br. Opp. 9-10. "[A]ll circuits

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[19] *E.g.*, *United States* v. *Sepulveda*, 15 F.3d 1161, 1183 (1st Cir. 1993), *cert. denied*, 512 U.S. 1223 (1994); *United States* v. *Daccarett*, 6 F.3d 37, 58 (2d Cir. 1993), *cert. denied*, 510 U.S. 1192, *and* 511 U.S. 1030 (1994); *United States* v. *14.38 Acres*, 80 F.3d 1074, 1077 (5th Cir. 1996); *American & Foreign Ins. Co.* v. *General Elec. Co.* 45 F.3d 135, 137 (6th Cir. 1995); *Bradley* v. *Brown*, 42 F.3d 434, 436-37 (7th Cir. 1994); *Claar* v. *Burlington N.R.R.*, 29 F.3d 499, 500-01 (9th Cir. 1994). For other examples see Pet. Cert. 7-9.

[20] *E.g.*, *United States* v. *Dorsey*, 45 F.3d 809, 813-14 (4th Cir.), *cert. denied*, 115 S. Ct. 2631 (1995); *Gier* v. *Educational Service Unit*, 66 F.3d 940, 944 (8th Cir. 1995); *Duffee* v. *Murray Ohio Mfg. Co.*, 91 F.3d 1410, 1411 (10th Cir. 1996). The District of Columbia Circuit likewise has held that review of Rule 702 rulings should accord trial judges "broad discretion," *Joy* v. *Bell Helicopter Textron, Inc.*, 999 F.2d 549, 567 (D.C. Cir. 1993), and that when expert testimony is excluded "[w]e review the district court's judgment for abuse of discretion." *Raynor* v. *Merrell Pharmaceuticals, Inc.*, 104 F.3d 1371, 1374 (D.C. Cir. 1997). For other examples see Pet. Cert. 9-11. An earlier 2-1 opinion of a panel of the D.C. Circuit, prior to *Raynor*, appeared to treat exclusion of expert testimony leading to summary judgment as a matter for *de novo* review; rehearing *en banc* was denied by a vote of 5-5. *Ambrosini* v. *Labarraque*, 101 F.3d 129, 132 (D.C. Cir. 1996), *pet'n for cert. dismissed sub nom. Upjohn Co.* v. *Ambrosini*, 65 U.S.L.W. 3755 (U.S. 1997) (No. 96-1552).

employ the 'abuse of discretion' standard for review of district court decisions regarding expert testimony, sometimes referring to it using the older, 'manifestly erroneous' language." *Id.* at 13. "[A]ll circuits are in broad agreement. The 'abuse of discretion' standard, sometimes called the 'manifestly erroneous' standard applies everywhere . . . ." *Id.* at 15.

3. *State Courts Have Interpreted Both Common Law and State Versions of Rule 702 To Allow Great Discretion.*

"It is well established that the body of common law knowledge must be a source of guidance in our interpretation of the rules." *Tome* v. *United States*, 513 U.S. 150, 168 (1995) (Scalia, J., concurring) (internal quotation marks omitted), quoting *Daubert*, 509 U.S. at 588, *United States* v. *Abel*, *supra*, 469 U.S. at 52, and Cleary, *Preliminary Notes on Reading the Rules of Evidence*, 57 NEB. L. REV. 908, 915 (1978). The standard of review at common law for rulings on admissibility of expert testimony spans at least two centuries. See, *e.g.*, *Sorg* v. *First German Evangelical St. Paul's Congregation*, 63 Pa. 156, 161-62 (1869):

> "[W]e will not reverse either on account of admission or rejection of such evidence, unless in a clear and strong case . . . . It lies within the limits of discretion."

People v. *Mooney*, 76 N.Y.2d 827, 828, 559 N.E.2d 1274, 1274 (1990):

> "Here, the trial court based its decision to exclude the [expert] testimony in the exercise of its sound discretion to which the admission of such evidence would, if legally admissible at all, be entrusted. Our review powers are limited accordingly . . . ." [21]

[21] *Accord, e.g., Traver* v. *Spokane Street Ry.*, 25 Wash. 225, 254, 65 Pac. 284, 294 (1901); *Fair Mercantile Co.* v. *St. Paul Fire & Marine Ins. Co.*, 237 Mo. App. 511, 523, 175 S.W.2d 930, 937 (1943); *State* v. *Kemp*, 199 Conn. 473, 476, 507 A.2d 1387, 1388-89 (1986); *People* v. *Roberts*, 2 Cal. 4th 271, 298, 826 P.2d 274, 286, *cert. denied*, 506 U.S. 964 (1992).

Since the enactment of the Federal Rules of Evidence in 1975, many states have adopted provisions identical to Rules 104(a) and 702 or nearly so. Overwhelmingly, in applying those rules, state courts have held that exclusions of scientific evidence are reviewed for abuse of discretion or manifest error. *E.g.*, *State* v. *Dirk*, 364 N.W.2d 117, 120 (S.D. 1985):

> "[W]e adopted the same standard of review with respect to our rule that the federal courts have applied to Rule 702. Under this standard, the trial court has broad discretion in determining the qualifications of expert witnesses and in admitting expert testimony. The trial court's decisions in this regard will not be reversed in the absence of a clear showing of an abuse of that discretion." [22]

[22] See also, *e.g.*, *Shepard* v. *State*, 847 P.2d 75, 79 (Alaska App. 1993) ("trial court's decision excluding expert testimony [under Alaska R. Evid. 702] is subject to reversal for abuse of discretion"); *State* v. *Mincey*, 141 Ariz. 425, 441, 687 P.2d 1180, 1196 (under Ariz. R. Evid. 702 "[t]he determination of whether an expert's opinion will so help the jury is a matter within the sound discretion of the trial court"), *cert. denied*, 469 U.S. 1040 (1984); *Wade* v. *Grace*, 321 Ark. 482, 486, 902 S.W.2d 785, 788 (1995) (under Ark. R. Evid. 702 "[w]hether a witness may give expert testimony rests largely within the sound discretion of the trial court, and that determination will not be reversed absent an abuse of discretion"); *People* v. *Jones*, 743 P.2d 44, 48 (Colo. App. 1987) ("[t]he trial court has broad discretion in ruling on the admissibility of expert witness testimony under CRE 702, and its determination whether such evidence will assist the jury will not be disturbed on appeal absent abuse of that discretion"); *Craft* v. *Peebles*, 78 Haw. 287, 301, 893 P.2d 138, 152 (1995) ("[o]n appeal the admissibility of expert testimony [under Haw. R. Evid. 702] is reviewed for abuse of discretion"); *Cook* v. *City of Detroit*, 125 Mich. App. 724, 735, 337 N.W.2d 277, 282 (1983) ("The decision of the trial court [under Mich. R. Evid. 702] will not be reversed absent an abuse of that discretion"); *Bowman* v. *McDonald's Corp.*, 916 S.W.2d 270, 282 (Mo. App. 1995) (under Mo. Rev. Stat. § 490.065 "[a] trial court does not usually commit reversible error by mere exclusion of expert testimony"); *Cottrell* v. *Burlington N.R.R.*, 261 Mont. 296, 301, 863 P.2d 381, 384 (1993) ("the determination of the qualification and competency of expert witnesses [under Mont. R. Evid. 702] rests largely within the trial judge, and without a showing of an abuse of discretion, such deter-

And those states that under such rules have specifically endorsed the analysis of *Daubert* have also adopted a deferential standard of appellate review. *E.g.*, *Steward* v.

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mination will not be disturbed"); *State* v. *Case*, 4 Neb. App. 885, 902, 553 N.W.2d 173, 184 (1996) ("The trial court's determination of whether an expert's opinion testimony will be helpful to the jury or assist the trier of fact in accordance with [Neb. R. Evid. 702] is a determination involving the discretion of the trial court, whose ruling on the admissibility will be upheld on appeal unless the trial court abused its discretion"); *State* v. *Girmay*, 139 N.H. 292, 294, 652 A.2d 150, 151-52 (1994) (review of exclusion under N.H.R. Evid. 702 is for abuse of discretion); *State* v. *Long*, 119 N.J. 439, 495, 575 A.2d 435, 463 (1990) ("[w]e find no abuse of discretion in the court's exclusion of Dr. Buckhout's testimony" under N.J.R. Evid. 702); *Smith* v. *Pass*, 95 N.C. App. 243, 251, 382 S.E.2d 781, 786 (1989) (under N.C.R. Evid. 702, the trial "judge is given wide latitude of discretion when making a determination about the admissibility of expert testimony. . . . A determination of whether the opinion evidence is sufficiently reliable and relevant is also within the judge's discretion"); *Larsen* v. *Zarrett*, 498 N.W.2d 191, 195 n.2 (N.D. 1993) ("the decision to admit or not to admit expert testimony under Rule 702, N.D. R. Ev., rests within the sound discretion of the trial court, and its decision will not be reversed on appeal unless the court has abused its discretion); *State* v. *Awkal*, 76 Ohio St. 3d 324, 331, 667 N.E.2d 960, 968 (1996) (under Ohio R. Evid. 702 "all questions concerning the admission or exclusion of this kind of evidence are considered on an abuse of discretion basis"), *cert. denied*, 117 S. Ct. 776 (1997); *State* v. *Griffin*, 691 A.2d 556, 557 (R.I. 1997) ("Trial justices have wide discretion" as "evidentiary gatekeepers" under R.I. R. Evid. 702); *State* v. *Dirk*, *supra* (S.D. Cod. L. § 19-15-2, Rule 702); *State* v. *Campbell*, 904 S.W.2d 608, 615 (Tenn. Cr. App. 1995) ("this Court will not interfere . . . unless it appears on the face of the record that the trial court abused its discretion"); *Soutiere* v. *Soutiere*, 163 Vt. 265, 269, 657 A.2d 206, 208 (1995) (under Vt. R. Evid. 702, "[t]rial courts have wide discretion in making evidentiary rulings, and we will not overturn the court's decision in the absence of an abuse of discretion"); *State* v. *Kalakosky*, 121 Wash. 2d 525, 541, 852 P.2d 1064, 1072-73 (1993) ("standard of review whereby the appellate court accords deference to the discretion of the trial court" in ruling under Wash. R. Evid. 702); *Hatch* v. *State Farm Fire & Cas. Co.*, 930 P.2d 382, 388 (Wyo. 1997) ("it is not the purpose of Wyo. R. Evid. 702 to provide blanket admissibility of expert testimony, but instead, to vest the trial court with the discretion to determine whether to exclude

State, 652 N.E.2d 490, 498-99 (Ind. 1995); *Mitchell* v. *Commonwealth*, 908 S.W.2d 100, 102 (Ky. 1995); *E.I. du Pont de Nemours & Co.* v. *Robinson*, 923 S.W.2d 549, 558 (Tex. 1995); *State* v. *Anderson*, 118 N.M. 284, 291, 881 P.2d 29, 37 (1994). *But see Gentry* v. *Mangum*, 195 W. Va. 512, 519, 466 S.E.2d 171, 178 (1995), *infra* n.23.

4. *The "Particularly Stringent" Standard Is a Recent Invention That Has Been Widely Rejected.*

The Court of Appeals relied as authority for its "particularly stringent" standard of review on a 1994 decision of the Third Circuit, *In re Paoli R.R. Yard PCB Litigation*, 35 F.3d 717 (3d Cir. 1994), *cert. denied sub nom. General Electric Co.* v. *Ingram*, 115 S. Ct. 1523 (1995). P.C.A. 5a. The *Paoli* opinion announced that

> "While evidentiary rulings are generally subject to a particularly high level of deference because the trial court has a superior vantage point to assess the evidence, . . . evaluating the reliability of scientific methodologies and data does not generally involve assessing the *truthfulness* of the expert witnesses and thus is often not significantly more difficult on a cold record.

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testimony demed unnecessary or not helpful to the trier of fact"). See also *Cunningham* v. *McDonald*, 689 A.2d 1190, 1193-94 (Del. 1997); *Chambliss* v. *White Motor Corp.*, 481 So. 2d 6, 8 (Fla. App. 1985), *rev. denied*, 491 So. 2d 278 (Fla. 1986); *State* v. *Schneider*, 129 Idaho 59, 921 P.2d 759, 762 (Idaho App. 1996); *State* v. *Small*, 1997 WL 175079, at *17-18 (La. App. 1997); *State* v. *Boobar*, 637 A.2d 1162, 1167 (Me. 1994); *Emmons* v. *State*, 107 Nev. 53, 56, 807 P.2d 718, 720 (1991); *Drake* v. *Wal-Mart, Inc.*, 876 P.2d 738, 742 (Okla. App. 1994); *State* v. *Wilson*, 121 Or. App. 460, 464, 855 P.2d 657, 659, *rev. denied*, 318 Or. 61, 865 P.2d 1297 (1993); *Walker* v. *Bluffs Apartments*, 477 S.E.2d 472, 473 (S.C. App. 1996); *Kent* v. *Pioneer Valley Hospital*, 930 P.2d 904, 906 (Utah App. 1997); *State* v. *Ross*, 203 Wis. 2d 66, 80, 552 N.W.2d 428, 433-34 (Wis. App. 1996). *Cf. State* v. *Borchardt*, 478 N.W.2d 757, 760 (Minn. 1991) (under Minn. R. Evid 702, "[t]he decision of whether to admit expert opinion testimony is within the trial court's discretion, and a reviewing court will not reverse unless there is an 'apparent error'").

> Moreover, here there are factors that counsel in favor of a hard look at (more stringent review of) the district court's exercise of discretion. For example, because the reliability standard of Rules 702 and 703 is somewhat amorphous, there is a significant risk that district judges will set the threshold too high and will in fact force plaintiffs to prove their case twice. Reducing this risk is particularly important because the Federal Rules of Evidence display a preference for admissibility."

35 F.3d at 749-50 (emphasis in original). Citing "preference for admissibility," the *Paoli* opinion held that

> "the likelihood of finding an abuse of discretion is affected by the importance of the district court's decision to the outcome of the case and the effect it will have on important rights."

Id. at 750.

> "We acknowledge that there is arguably a tension between the substantial deference normally accorded to rulings where the trial court has a superior vantage point and the preference for admissibility of the Federal Rules of Evidence. We resolve any such tension by holding that *when the district court's exclusionary rulings with respect to scientific opinion testimony will result in a summary or directed judgment, we will give them a 'hard look' (more stringent review, . . .)* to determine if a district court has abused its discretion in excluding evidence as unreliable."

Id. (footnote omitted; emphasis supplied). For its newly announced standard the *Paoli* opinion relied in part upon *United States* v. *Pennsylvania, Dep't of Envtl. Resources*, 923 F.2d 1071, 1073 (3d Cir. 1991), which had held that appellate review of district-court decisions declining to hear declaratory judgment cases should be more demanding because "the Declaratory Judgment Act [28 U.S.C. § 2201] should 'have a liberal interpretation;'" a year later the reasoning of that case was disapproved by this Court's decision in *Wilton* v. *Seven Falls Co., supra*, 115 S. Ct. at 2143-44 (holding proper standard of review was abuse-of-discretion).

Although in the present case the Eleventh Circuit simply adopted *Paoli*'s selective "hard look" "more stringent" standard of review without further discussion, all other courts of appeals that have taken note of the *Paoli* standard have specifically rejected it. In *Duffee* v. *Murray Ohio Mfg. Co.*, 91 F.3d 1410 (10th Cir. 1996), the Tenth Circuit, after acknowledging both the present case and *Paoli*, explained that

> "Like the Supreme Court, we 'are confident that federal judges possess the capacity to undertake this [*Daubert*] review.' . . . Their decisions, therefore, are properly reviewed under the traditional abuse of discretion standard."

91 F.3d at 1411, quoting *Daubert*, 509 U.S. at 593. The Fourth Circuit also declined to adopt the *Paoli* standard. *Cavallo* v. *Star Enterprise*, 100 F.3d 1150, 1153 (4th Cir. 1996), *pet'n for cert. filed*, 65 U.S.L.W. 3666 (U.S. 1997) (No. 96-1493); see also *Lust* v. *Merrell Dow Pharmaceuticals, Inc.*, 89 F.3d 594, 597 (9th Cir. 1996). The *Paoli* opinion's "creation of a new and higher standard of review" was criticized by one federal judge as "without authority or precedent." Wiseman, *Judging the Expert*, 55 OHIO ST. L.J. 1105, 1112 (1994). Before the present decision, it had been observed that

> "*Paoli* stands almost alone—alone but for later cases in its circuit that pick up its language—in expressing the standard of review as anything but the most lenient kind of review for abuse of discretion. The non-*Paoli* cases seem to be correct."

Fenner, *The Daubert Handbook: The Case, Its Essential Dilemma, and Its Progeny*, 29 CREIGHTON L. REV. 939, 1030 (1996) (footnote omitted).[23]

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[23] A single state-court opinion has cited the *Paoli* view with approval. See *Gentry* v. *Mangum*, 195 W. Va. 512, 519, 466 S.E.2d 171, 178-79 (1995) (reviewing Rule 702 exclusion under summary-judgment standard, but stating that exclusions under Rules 403 or 703 would be reviewed for abuse of discretion). *But cf. State* v. *LaRock*, 196 W. Va. 294, 306-07, 470 S.E.2d 613, 625-26 (1996) (in applying Rule 702 "appellate courts give trial judges a wide berth of respect with regards to these kinds of discretionary judgments,"

Moreover, as this Court in *Daubert* pointed out, 509 U.S. at 595, Rule 403 of the Federal Rules of Evidence often will overlap Rule 702. Rule 403 authorizes trial courts to exclude testimony, even if otherwise admissible, "if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury." It would serve little practical purpose to subject trial judges to a "particularly stringent" standard of appellate review of exclusions under Rule 702, when similar considerations often would also support exclusion under Rule 403. Rule 403 confers "wide discretion" and invokes "the district court's sound judgment;" exclusions under Rule 403 are reversed on appeal only for abuse of discretion. *United States* v. *Abel, supra,* 469 U.S. at 54; see also *Old Chief* v. *United States,* 117 S. Ct. 644, 650 (1997). To impose a "particularly stringent" review standard for Rule 702 exclusions—which usually are accompanied by an articulated application of criteria outlined in *Daubert*—could simply invite invocation instead of the more general discretion of Rule 403.[24]

Also, as *Daubert* further pointed out, 509 U.S. at 595, Fed. R. Evid. 703 (which requires facts or data to be "of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject") is sometimes yet another basis for exclusion. The trial court here could have applied Rule 703 to exclude opinions based on the two mouse studies, in light of the testimony of even Dr. Teitelbaum that scientists do not decide human carcinogenicity from such animal studies. J.A. 158, 160, 170; *accord*, J.A. 265, 267-68, 270. The standard of appellate review for Rule 703

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review "only for abuse of discretion," and "there is no principled way for us to second guess that ruling") (exclusion of defendant's expert; criminal conviction).

[24] See FEDERAL JUDICIAL CENTER, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 117 (1994) ("If courts adopt stringent standards [under Rules 702 and 703], then trial courts may tend to bolster their conclusions with a Rule 403 analysis that will be governed by an abuse-of-discretion standard of review").

exclusions is well established to be abuse-of-discretion. *E.g., Cummins* v. *Lyle Indus.*, 93 F.3d 362, 371 (7th Cir. 1996); *Christophersen* v. *Allied-Signal Corp.*, 939 F.2d 1106, 1115 (5th Cir. 1991) (*en banc*), *cert. denied*, 503 U.S. 912 (1992); *United States* v. *Wilson*, 798 F.2d 509, 517 (1st Cir. 1986); 3 J. WEINSTEIN *et al.*, WEINSTEIN'S EVIDENCE § 703[01] (1996).

C. Functional Criteria Confirm a Deferential Standard of Review.

When, unlike here, no standard is apparent from statute, rule, or established practice, this Court has identified criteria for determining the proper standard of appellate review: functional considerations such as which court, trial or appellate, is better situated to assess such an issue; whether the decisions will most often be fact-bound; and whether the time taken by an appellate court to retrace in detail a district court's effort is likely to produce a more reliable result or to provide doctrinal guidance useful for future cases. Here all those criteria reinforce the commitment of the Rules themselves to wide discretion for the trial court.

1. *District Courts Are Better Situated To Make Admissibility Determinations.*

"[T]he reviewing attitude that a court of appeals takes toward a district court decision should depend upon 'the respective institutional advantages of trial and appellate courts' . . . ." *First Options of Chicago, Inc.* v. *Kaplan*, 115 S. Ct. 1920, 1926 (1995), quoting *Salve Regina College* v. *Russell*, 499 U.S. 225, 233 (1991). "[D]eference [is] owed to the judicial actor . . . better positioned than another to decide the issue in question." *Koon* v. *United States, supra*, 116 S. Ct. at 2047 (internal quotation marks omitted), quoting *Pierce* v. *Underwood, supra*, 487 U.S. at 559-60, and *Miller* v. *Fenton*, 474 U.S. 104, 114 (1985). *Accord, Wilton* v. *Seven Falls Co., supra*, 115 S. Ct. at 2144. Fact-oriented and case-specific determinations are "[t]he trial judge's major role," and "with experience in fulfilling that role comes expertise." *Icicle Seafoods, Inc.* v. *Worthington*, 475 U.S. 709, 714

(1986), quoting *Anderson* v. *City of Bessemer City*, 470 U.S. 564, 574 (1985).[25]

Daubert explained that with respect to reliability,

> "Many factors will bear on the inquiry, and we do not presume to set out a definitive checklist or test."

509 U.S. at 593. It enumerated as examples testability, peer review, publication, error rate, existence of standards, and degree of acceptance in the relevant scientific community. *Id.* at 593-94. Those are considerations pointing to particular facts, not legal research. Likewise, Rule 702's requirement of relevance or "fit" considers "whether expert testimony proffered in the case is sufficiently tied to the facts of the case." 509 U.S. at 591, quoting *United States* v. *Downing*, 753 F.2d 1224, 1242 (3d Cir. 1985).

District courts are particularly adapted to handle issues that involve "multifarious" considerations that are "little susceptible . . . of useful generalization." *Pierce* v. *Underwood*, 487 U.S. 552, 562 (1988). They are also "better situated than the court of appeals" to apply a "fact-dependent legal standard." *Cooter & Gell* v. *Hartmarx Corp.*, *supra*, 496 U.S. at 402; see also *Denton* v. *Hernandez*, 504 U.S. 25, 33 (1992) ("district courts . . . are all too familiar with factually frivolous claims"); *Hensley* v. *Eckerhart*, 461 U.S. 424, 437 (1983) ("the desirability of avoiding frequent appellate review of what essentially are factual matters"); *Curtiss-Wright Corp.* v. *General Elec. Co.*, 446 U.S. 1, 10-11 (1980) ("because the number of possible situations is large, we are reluctant either to fix or sanction narrow guidelines for the district courts to follow") (discretionary certifications under Fed. R. Civ. P. 54(b)). "[W]hether information will 'assist' [Rule 702] or 'confuse' [Rule 403] the trier of fact is a quintessential judicial judgment call."

[25] *Cf. Ornelas* v. *United States*, 116 S. Ct. 1657, 1663 (1996) (emphasizing that even though rule of independent review of Fourth Amendment probable-cause determinations is long established, "we hasten to point out that a reviewing court should take care" to review factfindings only for clear error "and to give due weight to inferences drawn from those facts by resident judges").

Becker & Orenstein, *The Federal Rules of Evidence After Sixteen Years*, 60 G. WASH. L. REV. 857, 868 (1992) (footnotes omitted; brackets in original).[26]

2. *"Particularly Stringent" Appellate Review Would Consume Additional Resources Without Demonstrably Improving Results.*

There is no basis to assume that courts of appeals, removed as they are from the conduct and factual details of a case, would be likely somehow to reach more accurate or sound results in applying the "reliability" and "helpfulness" tests of Rule 702. The present case is a good illustration. In several instances, the Court of Appeals not only engaged in unauthorized appellate factfinding.[27] In doing so, it also misunderstood the record:

—It believed, for example, that "each opinion proffered by the Joiners' experts as scientific knowledge was supported by . . . physical examination of Joiner." P.C.A. 8a. In fact, Dr. Schecter concededly had never examined him at all, and only once had even spoken to him, J.A. 103-05—in a lawyer's office, "to get a feel for what kind of person he was, whether he was a person I would find believable." J.A. 103. Indeed, Dr. Schecter acknowledged that "if this isn't settled in a reasonable fashion

[26] Nor does appellate deference to admissibility rulings depend on a trial court's having followed a particular procedure; as with many preliminary determinations, Rule 104(a) does not specify any. See *Huddleston* v. *United States*, 485 U.S. 681, 689-90 (1988); *cf. Anderson* v. *City of Bessemer City*, 470 U.S. 564, 574 (1985) (deferential "clear error" standard for factfindings under Fed. R. Civ. P. 52(a) applies "even when the district court's findings do not rest on credibility determinations, but are based instead on physical or documentary evidence").

[27] See *Pullman-Standard* v. *Swint*, 456 U.S. 273, 293 (1982) ("incredible" not to remand to district court if rule of law had been applied incorrectly); *Icicle Seafoods, Inc.* v. *Worthington*, *supra*, 475 U.S. at 714 ("the Court of Appeals was mistaken to engage in . . . factfinding"). Respondent told the Court of Appeals that "in determining whether a plaintiff's experts have used a valid methodology in reaching their conclusions, a district court must make a *factual* determination . . . ." Reply Brief of Plaintiffs-Appellants, No. 94-9131, 11th Cir., at 7 (emphasis in original).

and goes to trial, then one might want to be a little more thorough with Mr. Joiner." J.A. 108. Dr. Teitelbaum also had talked with respondent only once, also at the lawyers' office; without details he described what he did to be "as complete an examination as one could do not working in one's own office." J.A. 137-38, 139.[28] Neither expert ordered any tests or communicated with the treating physicians. J.A. 103-04, 138, 139.

—Although the Court of Appeals emphasized that "[i]n arriving at his opinion, Schecter claimed to have eliminated other potential causes of Joiner's lung cancer to a reasonable degree of medical certainty," P.C.A. 10a, the Court of Appeals appeared unaware that in his deposition Dr. Schecter had conceded that "[m]ost lung cancer in the United States is caused by cigarette smoking," J.A. 109, and "I believe more likely than not that Mr. Joiner's lung cancer was causally linked to cigarette smoking and PCB exposure," J.A. 107.

—In accepting the assumptions of the two physicians that dioxins or furans could be formed at some temperature from PCBs, the Court of Appeals ignored that Dr. Schecter and Dr. Teitelbaum each had conceded lack of expertise in physical chemistry. J.A. 109, 156-57. Indeed, Dr. Teitelbaum, when asked if he had that competence, exclaimed "Heavens, no." J.A. 157. Neither was able to state with certainty at what temperature they thought such a conversion might occur. J.A. 122-23, 156-57.

—The Court of Appeals then concluded that "[t]he defendants never succeeded in rebutting the conclusions of the Joiners' experts by either establishing a threshold temperature . . . or presenting any direct evidence of the actual temperatures." P.C.A. 15a. But, even assuming such a burden rested on petitioners (*but see* p. 45, *infra*),

[28] *Cf. Land* v. *United States*, 35 Fed. Cl. 345, 352 n.7 (1996) (holding that Dr. Teitelbaum's " 'preliminary' medical opinion that plaintiffs' injuries were probably caused by DIMP poisoning is of little value because Dr. Teitelbaum did not conduct physical examinations of the plaintiffs"), *aff'd*, 37 Fed. Cl. 231 (1997).

the record contained expert testimony of two chemists that even undiluted PCBs do not form dioxins under any conditions, J.A. 367, 370, and pure PCBs convert to furans if at all only under prolonged temperatures of at least 300° C., J.A. 362, 372. The record also showed that the paper insulation of the transformers would char or burn well below 300° C., J.A. 366, so that transformers should not be dried at temperatures above 85° to 90° C. J.A. 506, 507.[29]

—The Court of Appeals described Dr. Teitelbaum as "a practicing toxicologist" who "has repeated experience *treating* patients from the electrical trades." P.C.A. 8a n.8 (emphasis supplied). According to the record, however, Dr. Teitelbaum was a practicing witness. See J.A. 175-83 (listing 347 litigation appearances); see also J.A. 184-85 (bill for litigation services). What he testified was that he spent a minority of his time on unspecified "patient care," J.A. 169, and that he had "interviewed" and "seen" electrical workers, J.A. 141, with whom he had "experience." J.A. 450. His contact with them, as he elsewhere described it, J.A. 167, was that

> "Usually I see the people who are sick, and usually if I feel that the causation is what I think it is and I write that in a report and somebody comes to me and says, 'Will you testify about that?' I will say yes."

—Quite unaccountably the Court of Appeals stated that "defendants do not challenge" the assertion that Drs. Schecter's and Teitelbaum's opinions rested on accepted

[29] The Court of Appeals unquestioningly adopted Dr. Teitelbaum's surmise that "['Joiner] says it was hot enough for it to smoke, and oil smokes at around 700 degrees, 800 degrees [centigrade].' " P.C.A. 16a; see J.A. 156. The record contained uncontroverted data, however, that mineral oil produces ignitable vapor (flash point) at about 150° C. or less. J.A. 362, 504. A temperature of 700° C., which Dr. Teitelbaum assumed could be produced by large light bulbs, would exceed the melting points of many metals. See CRC HANDBOOK OF CHEMISTRY AND PHYSICS 12-159 to 12-160 (D. Lide 75th ed. 1994) (lead, 327° C.; zinc, 420° C.; magnesium, 650° C.; aluminum, 660° C.). As was noted by the dissenting judge, P.C.A. 23a, respondents never attempted to rely on that statement by Dr. Teitelbaum, but the Court of Appeals did.

methodology. P.C.A. 11a. On the contrary, petitioners repeatedly and explicitly had challenged the opinions for failure to follow scientific methodology; petitioners did so through other expert witnesses, *e.g.*, J.A. 232-33, 234-37, 265, 279, 372-73, 379, pp. 10-11, *supra*; in argument, *e.g.*, J.A. 387-88, 390-91; and on appeal, *e.g.*, J.A. 517 ("A methodology which generates opinions based upon inapposite scientific literature is flawed"); J.A. 515 ("The District Court . . . held the plaintiffs' experts' *methodology* inadequate, because there was no scientific link between the cited studies and the proffered opinions".) (emphasis in original).

This case confirms this Court's observation in *Anderson* v. *City of Bessemer City*, 470 U.S. 564, 574-75 (1985), that "[d]uplication of the trial judge's efforts in the court of appeals would very likely contribute only negligibly to the accuracy of fact determination at a huge cost in diversion of judicial resources." And "even where the district judge's full knowledge of the factual setting can be acquired by the appellate court, that acquisition will often come at unusual expense . . . ." *Pierce* v. *Underwood*, *supra*, 487 U.S. at 560; see also *Icicle Seafoods, Inc.* v. *Worthington*, *supra*, 475 U.S. at 714.

3. *"Particularly Stringent" Appellate Review of Fact-Intensive Rulings Would Contribute Little to Clarifying Legal Doctrine.*

"[A]ppellate review serves a dual purpose: the correction of legal error and the establishment of legal rules for future guidance." *Church of Scientology* v. *IRS*, 792 F.2d 153, 155 n.1 (D.C. Cir. 1986) (*en banc*) (Scalia, J.), *aff'd*, 484 U.S. 9 (1987). The function of appellate judges is "to devote their primary attention to legal issues." *Salve Regina College* v. *Russell*, *supra*, 499 U.S. at 232.

That function is not likely to be served by having panels of circuit judges apply themselves to "particularly stringent" review of selected district-court admissibility rulings under *Daubert*. "*Daubert*'s mandate . . . requires judges to determine whether proffered testimony somehow merits the label of 'scientifically valid' *at one specific point in time* and in the context of *one specific case*." K. FOSTER & P. HUBER, JUDGING SCIENCE 241 (1997) (emphasis supplied). A court of appeals' occasional conclusion, after parsing an extensive record, that particular experts' opinions were sufficiently reliable as science after all, and on some reading could fit the facts of the particular case, would seldom announce or clarify principles to guide other courts. Rather, a court of appeals in each new case would simply have to go through a new specific record again, applying the established *Daubert* criteria and occasionally second-guessing the district court. "Particularly stringent" review of Rule 702 rulings, which involve "consideration of unique factors that are little susceptible . . . of useful generalization," is "unlikely to establish clear guidelines for lower courts." *Koon* v. *United States*, *supra*, 116 S. Ct. at 2047 (internal quotation marks omitted), quoting *Cooter & Gell* v. *Hartmarx Corp.*, *supra*, 496 U.S. at 404, 405. It would not serve "the law declaration aspect of independent review." *Thompson* v. *Keohane*, 116 S. Ct. 457, 467 (1995).

Nor would that kind of review be a wise allocation of the limited time of courts of appeals, which, if they devote more hours and days to such particularized review activities, will of necessity have less time for the deliberation, study, and explication to which they are particularly suited.

> "The courts of appeals in recent decades have seen an increase in their caseloads disproportionate to caseload increases in the district courts. Changes in standards of review . . . have . . . been identified as [among] potential explanations for this disproportionate rise."

J. MCKENNA, STRUCTURAL AND OTHER ALTERNATIVES FOR THE FEDERAL COURTS OF APPEALS 23 (Fed. Judicial Center 1993). The federal appellate system has been compared to a city in the arid West that needs to conserve its water resources, rather than construct new subdivisions. Rehnquist, *Address to American Bar Ass'n*, Feb. 6, 1989, reprinted in MANHATTAN LAWYER 16 (Feb. 14, 1989); see also Rehnquist, *1993 Year-End Report on the Federal Judiciary*, 17 AM. J. TRIAL ADVOC. 571, 575 (1994) (noting disproportionate increase in ap-

peals); MCKENNA, *supra*, at 42-45 (courts of appeals by 1993 were hearing argument in fewer than half of cases decided on the merits, and issuing opinions in less than one-third). To burden the courts of appeals with more demanding review responsibilities might well result in fewer or less fully considered opinions generally, which would not serve the law at all.

II. AN ASYMMETRICAL "PARTICULARLY STRINGENT" STANDARD OF REVIEW WOULD VIOLATE ACCEPTED DOCTRINE, THE CIVIL RULES, AND *DAUBERT*.

A. This Court Has Consistently Declined Proposals for Double Standards of Review.

Two years ago this Court reiterated that "it is undesirable to make the law more complicated by proliferating review standards without good reasons." *First Options of Chicago, Inc.* v. *Kaplan*, *supra*, 115 S. Ct. at 1926. Yet that is exactly what the Court of Appeals did here. It also made the standard of appellate review turn, not on the nature of the issue on appeal, but rather on how the district court decided it.

That admissibility determinations in scientific-evidence cases may alter outcomes does not set such cases apart from other litigation. Lawyers well know that evidentiary rulings often shape a trial and sometimes are outcome-determinative. Nevertheless, as *Daubert* recognized, Rule 104(a) assigns trial judges great discretion to make preliminary evidentiary rulings, including important ones. It is well recognized that

> "[T]he Trial Judge who excludes the evidence for insufficient proof of the preliminary fact will often preempt the jury. But this is not particularly troublesome. The law of evidence is based on the assumption that a litigant will not get to the jury unless she has enough evidence which the Trial Judge finds to be admissible."

1 S. SALTZBURG *et al.*, FEDERAL RULES OF EVIDENCE MANUAL 60 (6th ed. 1994). Moreover, the consequences of *not* excluding unsupported opinions can be very serious, too. Respondent here was asking, based on these two opinions, not just that petitioners be forced to incur litigation costs, but that they be ordered to pay him tens of millions of dollars.

In many situations this Court has applied abuse-of-discretion review to many kinds of rulings that may have a significant effect on the outcome of a case or even determine it. See, *e.g.*, *Wilton* v. *Seven Falls Co.*, *supra*, 115 S. Ct. at 2143-44 (declining of declaratory-judgment jurisdiction); *Denton* v. *Hernandez*, 504 U.S. 25, 33 (1992) (dismissal of frivolous claim); *Piper Aircraft Co.* v. *Reyno*, 454 U.S. 235, 257 (1981) (dismissal for *forum non conveniens*); *National Hockey League* v. *Metropolitan Hockey Club, Inc.*, 427 U.S. 639, 642 (1976) (dismissal as discovery sanction); see also *Gulf Oil Co.* v. *Bernard*, 452 U.S. 89, 103 (1981) (abuse-of-discretion standard for review of class-certification order under Fed. R. Civ. P. 23(d)); *Curtiss-Wright Corp.* v. *General Elec. Co.*, *supra*, 446 U.S. at 10-11 (abuse-of-discretion standard for certification under Fed. R. Civ. P. 54(b)); *Pierce* v. *Underwood*, *supra*, 487 U.S. at 558 n.1 (collecting cases).[30]

This Court has rejected, in particular, proposals that standards of review should be more deferential or less

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[30] See also *Zafiro* v. *United States*, 506 U.S. 534, 538-39 (1993) (motion for severance); *McFarland* v. *Scott*, 512 U.S. 849, 858 (1994) (capital defendant's motion for stay of execution); *Foman* v. *Davis*, 371 U.S. 178, 182 (1962) (motion to amend complaint). In declining to depart from the abuse-of-discretion standard in reviewing a fee award 1,000 percent of the median, under a statute that had been applied for less than a decade, this Court declined to exclude the possibility of situations in which more intensive review might become appropriate. *Pierce* v. *Underwood*, *supra*, 487 U.S. at 563. The rule this Court adhered to and applied in *Pierce*, however, was stated in upholding *per curiam* a district court's dismissal as a discovery sanction in *National Hockey League* v. *Metropolitan Hockey Club, Inc.*, *supra*: this Court held that courts of appeals must resist the "natural tendency on the part of reviewing courts, . . . to be heavily influenced by the severity of outright dismissal." 427 U.S. at 642. See also *First Options of Chicago*, *supra*, 115 S. Ct. at 1926.

so depending on which way a district court has ruled—that in effect there should be a thumb on the scales of justice favoring a particular outcome.

> "[T]he reviewing attitude that a court of appeals takes toward a district court decision should depend upon 'the respective institutional advantages of trial and appellate courts,' not upon what standard of review will more likely produce a particular substantive result."

First Options of Chicago, Inc. v. *Kaplan, supra*, 115 S. Ct. at 1926, quoting *Salve Regina College* v. *Russell, supra*, 499 U.S. at 231-33. A glaring anomaly of the Court of Appeals' standard would be that on appeal the very same testimony could be held to satisfy or not satisfy Rule 702, depending solely on whether exclusion had resulted in summary judgment. Neither Rule 104 nor Rule 702, nor Rule 56, Fed. R. Civ. P., authorizes such procedural manipulation. As Chief Justice Marshall wrote for this Court long ago, "It is undoubtedly true, that questions respecting the admissibility of evidence, are entirely distinct from those which respect its sufficiency or effect." *Columbian Ins. Co.* v. *Lawrence*, 2 Pet. 25, 44 (1829).

B. A Standard Disfavoring Summary Judgment Would Undermine Fed. R. Civ. P. 56.

The stringent *Paoli* standard adopted by the Eleventh Circuit here was judicially created to apply only "when the district court's exclusionary evidentiary rulings with respect to scientific opinion testimony will result in a summary or directed judgment." *Paoli*, 35 F.3d at 750. In other words, the standard is intended to disfavor and discourage rulings that would lead to summary judgment.

Yet there is no policy in the Federal Rules disfavoring summary judgment. Quite the contrary. In *Celotex Corp.* v. *Catrett*, 477 U.S. 317, 322 (1986), this Court explained that "the plain language of Rule 56(c) mandates the entry of summary judgment . . . against a party who fails to make a showing sufficient to establish the existence of an element essential to that party's case, and on which that party will bear the burden of proof at trial."

> "Summary judgment procedure is properly regarded not as a disfavored procedural shortcut, but rather as an integral part of the Federal Rules as a whole, which are designed 'to secure the just, speedy and inexpensive determination of every action.'"

Id. at 327, quoting Fed. R. Civ. P. 1; see also *Matsushita Elec. Indus. Co.* v. *Zenith Radio Corp.*, 475 U.S. 574, 587 (1986). "If the evidence is merely colorable . . . or is not significantly probative . . . summary judgment may be granted." *Anderson* v. *Liberty Lobby, Inc.*, 477 U.S. 242, 249-50 (1986); see also *First Nat'l Bank* v. *Cities Service Co.*, 391 U.S. 253, 290 (1968) ("absence of any significant probative evidence").

The Federal Rules expect district judges to "exercise sound discretion and use the tools available" and "be especially alert to identify frivolous claims brought to extort nuisance settlements." *Reiter* v. *Sonotone Corp.*, 442 U.S. 330, 345 (1979). "[E]ven a complaint which by objective standards may have very little chance of success at trial has a settlement value to the plaintiff out of any proportion to its prospect of success at trial so long as he may prevent the suit from being resolved against him by dismissal or summary judgment." *Blue Chip Stamps* v. *Manor Drug Stores*, 421 U.S. 723, 740 (1975); see also Schwarzer, *Summary Judgment Under the Federal Rules*, 99 F.R.D. 465 (1980). The principal drafter of Rule 56 wrote that "a court has failed in granting justice when it forces a party to an expensive trial of several weeks' duration to meet purely formal allegations without substance fully as much as when it improperly refuses to hear a case at all." Clark, *The Summary Judgment*, 36 MINN. L. REV. 567, 578 (1952). Therefore "in Rule 56 proceedings we still apply the manifest-error standard of review to the trial court's evidentiary rulings." *Christophersen* v. *Allied-Signal Corp., supra*, 939 F.2d at 1109. "The abuse of discretion standard applies to an F.R.E. 702 ruling even though the ruling was dispositive of a motion for summary judgment." *Lust* v. *Merrell Dow Pharmaceuticals, Inc.*, 89 F.3d 594, 597 (9th Cir. 1996). See also, *e.g.*, *Dyer* v. *MacDougall*, 201 F.2d 265, 268 (2d

Cir. 1952) (L. Hand, J.) (affirming summary judgment where the only evidence identified by plaintiff was inadmissible).

C. "Particularly Stringent" Review Would Discourage District Courts From Performing Their "Gatekeeping" Duty.

A one-way "particularly stringent" review standard would create an incentive structure for district judges that inevitably would discourage the exclusion of opinions lacking scientific support. Under the standard of the Court of Appeals here, if district courts hold opinions admissible, those rulings will receive ordinary abuse-of-discretion deference on appeal. But if district judges perform their "gatekeeping" duty and exclude, then they will be held to a more demanding standard, and are more likely to get reversed. It has been observed that some district judges already are reluctant to grant summary judgment because of the likelihood of reversal if they do so, but not if they deny it.[31] There is no sound basis, particularly in the absence of textual, historical, or functional support, judicially to create further disincentives.

To recognize discretion for district-court admissibility rulings of course does not confer *carte blanche*, or insulate them from meaningful appellate review. This Court in *Wilton* v. *Seven Falls Co.*, *supra*, 115 S. Ct. at 2144, "reject[ed] . . . [the] suggestion . . . that review for abuse of discretion 'is tantamount to no review' at all." See also *Koon* v. *United States*, *supra*, 116 S. Ct. at 2046 ("That the district court retains much of its traditional discretion does not mean appellate review is an empty

[31] See, *e.g.*, Schwarzer, *supra*, at 466-67 ("Trial judges are . . . uncertain about how a summary judgment will fare on appeal . . . . The chilling effect . . . is reinforced by a perception that summary judgments suffer a disproportionately high rate of reversal"). By contrast, a district court's denial of summary judgment normally is unappealable and effectively insulated from reversal. *Cf. Locricchio* v. *Legal Services Corp.*, 833 F.2d 1352, 1359 (9th Cir. 1987) ("After considerable research, we have found no case in which a jury verdict was overturned because summary judgment had been improperly denied").

exercise"); *cf. Beech Aircraft Corp.* v. *Rainey*, 488 U.S. 153, 172 (1988) ("[t]he District Court's refusal to admit the proffered completion evidence was a clear abuse of discretion"); *Old Chief* v. *United States*, 117 S. Ct. 644, 647 (1997) (abuse of discretion under Rule 403); *Clinton* v. *Jones*, 65 U.S.L.W. 4372, 4380 (U.S. 1997) (abuse of discretion to defer trial). And courts of appeals applying an abuse-of-discretion or manifest-error standard have when appropriate reversed district court exclusions under *Daubert*. See, *e.g.*, *United States* v. *14.38 Acres*, 80 F.3d 1074, 1077 (5th Cir. 1996) (reversing exclusion under *Daubert* because "[a]lthough a trial court is accorded a wide berth to determine the admissibility of expert testimony, . . . we conclude that in this case the district court abused its discretion in excluding the testimony"); *Williams* v. *Hedican*, 561 N.W.2d 817, 822 (Iowa 1997); *Tidwell* v. *Upjohn Co.*, 626 So. 2d 1297, 1300 (Ala. 1993); *cf. Buscaglia* v. *United States*, 25 F.3d 530, 534 (7th Cir. 1994) (district court abused its discretion in excluding expert testimony under Rules 702 and 403).

III. THE COURT OF APPEALS MISAPPLIED *DAUBERT*.

The Court of Appeals in second-guessing the District Court's well-supported admissibility ruling not only overstepped its role under Rules 104 and 702, but also misunderstood the requirements of Rule 702 and misapplied *Daubert*.

A. Misplaced Burden of Establishing Admissibility.

For example, the Court of Appeals, whenever it believed information relevant to admissibility was lacking, put the burden of producing it on petitioners. *E.g.*, P.C.A. 13a n.9, 15a; see pp. 36-37, *supra*. But as the dissent recognized, P.C.A. 23a, the law is exactly the opposite. *Daubert* makes clear that for scientific opinions, as for proffers of evidence generally, the burden of establishing admissibility rests on the party seeking to have evidence admitted. "[W]hen the preliminary facts . . . are disputed, the offering party must prove them by a preponderance of the evidence." *Bourjaily* v. *United States*, 483 U.S. 171, 176 (1987), cited in *Daubert*, 509 U.S. at 592 n.10.

B. Self-Validating Experts.

The Court of Appeals observed of Drs. Schecter and Teitelbaum that "each appears to have a national reputation, and the district court qualified them as experts." P.C.A. 8a. It stressed that "the extensive experience and specialized expertise of each of these experts augment the reliability of their reasoning and methodology." P.C.A. 11a. Thus in its "particularly stringent" review of the District Court, the Court of Appeals emphasized a factor not even listed by this Court in *Daubert*. See 509 U.S. at 593-94. In *Daubert* itself, for example, the experts—eight of them—also "possessed impressive credentials," 509 U.S. at 583; nevertheless, on remand their opinions were held not to satisfy Rule 702 because "we've been presented with only the experts' qualifications, their conclusions, and their assurances of reliability. Under *Daubert*, that's not enough." *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 43 F.3d 1311, 1319 (9th Cir. 1994), *cert. denied*, 116 S. Ct. 189 (1995). "[T]he abuse, or one of the abuses, at which *Daubert* and its sequelae are aimed" is "the hiring of reputable scientists, impressively credentialed, to testify for a fee to propositions that they have not arrived at through the methods that they use when they are doing their regular professional work." *Braun* v. *Lorillard Inc.*, 84 F.3d 230, 234 (7th Cir. 1996).

The Court of Appeals here treated these two experts' opinions as essentially self-validating. The witnesses asserted they had followed scientific methodology, and for the Court of Appeals that was enough, P.C.A. 10a-11a—even though they offered no scientific authority reaching their conclusions, and no response to the scientists who pointed out the omission. See pp. 10-11, *supra*. The Court of Appeals accepted at face value, for instance, Dr. Schecter's unexplained post-deposition assertion that he had "eliminated other potential causes of Joiner's lung cancer to a reasonable degree of medical certainty," P.C.A. 10a, J.A. 404, even though Dr. Schecter gave no hint of how he claimed to have done so, in light of his acknowledgment that "[m]ost lung cancer in the United States is caused by cigarette smoking." J.A. 109.

Even before *Daubert* it was not enough that "the plaintiff's expert brought to court little more than his credentials and a subjective opinion." *Viterbo* v. *Dow Chem. Co.*, 826 F.2d 420, 421 (5th Cir. 1987). Thus in *Daubert* on remand the court of appeals in affirming the district court pointed out, 43 F.3d at 1315-16, that

> "something doesn't become 'scientific knowledge' just because it's uttered by a scientist; nor can an expert's self-serving assertion that his conclusions were 'derived by the scientific method' be deemed conclusive, else the Supreme Court's opinion could have ended with footnote two [which summarized the experts' credentials]."

C. Absence of Scientific Methodology.

"In a case involving scientific evidence, *evidentiary reliability* will be based upon *scientific validity*." *Daubert*, 509 U.S. at 591 n.9 (emphasis in original). As this Court explained,

> "The adjective 'scientific' implies a grounding in the methods and procedures of science. Similarly, the word 'knowledge' connotes more than subjective belief or unsupported speculation."

509 U.S. at 590. "[T]he Supreme Court in *Daubert* told judges to distinguish between real and courtroom science." *Rosen* v. *Ciba-Geigy Corp.*, 78 F.3d 316, 318 (7th Cir.), *cert. denied*, 117 S. Ct. 73 (1996).

The District Court here examined the opinions and pointed out "the analytical gap between the evidence presented and the inferences to be drawn." P.C.A. 61a, quoting *Turpin* v. *Merrell Dow Pharmaceuticals, Inc.*, 959 F.2d 1349, 1360 (6th Cir.), *cert. denied*, 506 U.S. 826 (1992). The Court of Appeals, however, treated *Daubert's* requirement of scientific methodology at such a superficial level as to leave it meaningless—calling for no more than the invocation of scientific materials. Thus the Court of Appeals simply referred without elaboration to "the studies of at least thirteen different researchers . . . that *address* the question of whether PCBs cause cancer,"

as if this somehow turned the experts' conjectures into "scientific . . . knowledge." P.C.A. 12a (emphasis supplied). The Court of Appeals essentially held that if an expert cites conventional scientific authorities, the expert has satisfied the requirement of scientific methodology, no matter what the authorities actually say, and what steps are missing between the citations and the conclusion.

If this Court's *Daubert* opinion made anything clear, it was that Rule 702 does not permit experts' opinions to escape methodological scrutiny simply by invoking a black box called science. "To the contrary, under the Rules the trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable." 509 U.S. at 589. Under *Daubert*, scientific *methodology* requires scientific *reasoning*, which includes as a minimum that conclusions be logically supported by premises. In addition, "the scientific method" consists of "subjecting testable hypotheses to the crucible of experiment in an effort to disprove them." *United States* v. *Bynum*, 3 F.3d 769, 773 (4th Cir. 1993), *cert. denied*, 510 U.S. 1132 (1994). "Ordinarily, a key question . . . in determining whether a theory or technique is scientific knowledge . . . will be whether it can be (and has been) tested." *Daubert*, 509 U.S. at 593.

No empirical tests had reached the conclusions offered by these witnesses. That was not from absence of trying. PCBs have been widely and repeatedly tested for many years now—with no study concluding that they caused human cancer, much less small-cell lung cancer. *E.g.* J.A. 169-70, 234-35, 238, 271, 279, 307, 371, 375-76, 378, 381-82; see generally Kimbrough, *The Human Health Effects of Polychlorinated Biphenyls*, in K. FOSTER *et al.*, PHANTOM RISK 221, 221-25 (1993). " '[G]eneral acceptance' can yet have a bearing," and a tested hypothesis lacking it "may properly be viewed with skepticism." *Daubert*, 509 U.S. at 594.

The Court of Appeals, referring to animal studies and surmises, reversed the District Court on the ground that

> "[o]pinions of any kind are derived from individual pieces of evidence, each of which by itself might not be conclusive, but when viewed in their entirety are the building blocks of a perfectly reasonable conclusion . . . ."

P.C.A. 12a. Almost those very words have been cited by scientists and scholars as violating the methodology of science: "The faggot fallacy is a belief that multiple pieces of evidence, each independently being suspect or weak, provide strong evidence when bundled together." P. SKRABANEK & J. MCCORMICK, FOLLIES & FALLACIES IN MEDICINE 35 (1990), quoted in K. FOSTER & P. HUBER, *supra*, at 142.

In other circuits district-court exclusions of unsupported opinions have repeatedly been affirmed. *E.g.*, *Sorensen* v. *Shakelee Corp.*, 31 F.3d 638, 649 (8th Cir. 1994):

> "Here, the hypotheses presented by plaintiffs' experts follow no scientific principles. . . . Instead of reasoning from known facts to reach a conclusion, the experts here reasoned from an end result in order to hypothesize what needed to be known but what was not."

See also, *e.g.*, *Deimer* v. *Cincinnati Sub-Zero Prods. Inc.*, 58 F.3d 341, 344-45 (7th Cir. 1995) ("the witness did not conduct any studies or analysis to substantiate his opinion. . . . The witness proffered unverified statements that were unsupported by any scientific method"); *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 43 F.3d at 1319 ("Dr. Palmer offers no tested or testable theory to explain how, from this limited information, he was able to eliminate all other potential causes of birth defects, nor does he explain how he alone can state as a fact that Bendectin caused plaintiffs' injuries"), *cert. denied*, 116 S. Ct. 189 (1995); *O'Conner* v. *Commonwealth Edison Co.*, 13 F.3d 1090, 1106 (7th Cir.) ("In order to qualify as 'scientific knowledge,' an inference or assertion must be derived by the scientific method"), *cert. denied*, 512 U.S. 1222 (1994); *Viterbo* v. *Dow Chem. Co.*, 826 F.2d 420, 424 (5th Cir. 1987) ("Dr. Johnson's testimony is no more

than Viterbo's testimony dressed up and sanctified as the opinion of an expert").

"[A] scientist, however reputable, is not permitted to offer evidence that he has not generated by the methods he would use in his normal academic or professional work . . . ." *Khan* v. *State Oil Co.*, 93 F.3d 1358, 1365 (7th Cir. 1996), *cert. granted*, 117 S. Ct. 941 (1997). Opinions to be admissible under Rule 702 must be "genuinely scientific, as distinct from being unscientific speculation offered by a genuine scientist." *Rosen* v. *Ciba-Geigy Corp.*, *supra*, 78 F.3d at 318.[82]

CONCLUSION

For the reasons stated, the judgment of the Court of Appeals should be reversed.

Respectfully submitted,

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[82] "[C]ourts must be particularly wary of unfounded expert opinion testimony when medical causation is the issue. As we have previously noted, 'there is not much difficulty in finding a medical expert witness to testify to virtually any theory of medical causation short of the fantastic.'"

Cella v. *United States*, 998 F.2d 418, 423 (7th Cir. 1993), quoting *Stoleson* v. *United States*, 708 F.2d 1217, 1222 (7th Cir. 1983). See also *In re Air Crash Disaster*, 795 F.2d 1230, 1234 (5th Cir. 1986) ("opinions that they might not be willing to express in an article submitted to a refereed journal"); *Mid-State Fertilizer Co.* v. *Exchange Nat'l Bank*, 877 F.2d 1333, 1340 (7th Cir. 1989) ("ukase in the guise of expertise is a plague in contemporary litigation"); Berger, *A Relevancy Approach to Novel Scientific Evidence*, 115 F.R.D. 89, 91 (1987) ("It is quite apparent that experts are readily available to present essentially frivolous theories . . . ."); Weinstein, *Improving Expert Testimony*, 20 U. RICH. L. REV. 473, 482 (1986) ("[a]n expert can be found to testify to the truth of almost any factual theory, no matter how frivolous . . . ."). *Cf. Winans* v. *New York & E.R.R.*, 21 How. 88, 101 (1859) ("opposite opinions of persons professing to be experts may be obtained to any amount").

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APPENDIX

APPENDIX

A. FEDERAL RULES OF EVIDENCE

Rule 104

Preliminary Questions

(a) Questions of Admissibility Generally. Preliminary questions concerning the qualification of a person to be a witness, the existence of a privilege, or the admissibility of evidence shall be determined by the court, subject to the provisions of subdivision (b). In making its determination it is not bound by the rules of evidence except those with respect to privileges.

(b) Relevancy conditioned on fact. When the relevancy of evidence depends upon the fulfillment of a condition of fact, the court shall admit it upon, or subject to, the introduction of evidence sufficient to support a finding of the fulfillment of the condition.

(c) Hearing of jury. Hearings on the admissibility of confessions shall in all cases be conducted out of the hearing of the jury. Hearings on other preliminary matters shall be so conducted when the interests of justice require, or when an accused is a witness and so requests.

(d) Testimony by accused. The accused does not, by testifying upon a preliminary matter, becomes subject to cross-examination as to other issues in the case.

(e) Weight and credibility. This rule does not limit the right of a party to introduce before the jury evidence relevant to weight or credibility.

* * * *

Rule 401

Definition of "Relevant Evidence"

"Relevant evidence" means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence.

Rule 402

Relevant Evidence Generally Admissible; Irrelevant Evidence Inadmissible

All relevant evidence is admissible, except as otherwise provided by the Constitution of the United States, by Act of Congress, by these rules, or by other rules prescribed by the Supreme Court pursuant to statutory authority. Evidence which is not relevant is not admissible.

Rule 403

Exclusion of Relevant Evidence on Grounds of Prejudice, Confusion, or Waste of Time

Although relevant, evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence.

* * * *

Rule 701

Opinion Testimony by Lay Witnesses

If the witness is not testifying as an expert, the witness' testimony in the form of opinions or inferences is limited to those opinions or inferences which are (a) rationally based on the perception of the witness and (b) helpful to a clear understanding of the witness' testimony or the determination of a fact in issue.

Rule 702

Testimony by Experts

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Rule 703

Bases of Opinion Testimony by Experts

The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence.

Rule 704

Opinion on Ultimate Issue

(a) Except as provided in subdivision (b), testimony in the form of an opinion or inference otherwise admissible is not objectionable because it embraces an ultimate issue to be decided by the trier of fact.

(b) No expert witness testifying with respect to the mental state or condiiton of a defendant in a criminal case may state an opinion or inference as to whether the defendant did or did not have the mental state or condition constituting an element of the crime charged or of a defense thereto. Such ultimate issues are matters for the trier of fact alone.

Rule 705

Disclosure of Facts or Data Underlying Expert Opinion

The expert may testify in terms of opinion or inference and give reasons therefor without first testifying to the underlying facts or data, unless the court requires otherwise. The expert may in any event be required to disclose the underlying facts or data on cross-examination.

Rule 706

Court Appointed Experts

(a) Appointment. The court may on its own motion or on the motion of any party enter an order to show cause why expert witnesses should not be appointed, and may request the parties to submit nominations. The court may appoint any expert witnesses agreed upon by the parties, and may appoint expert witnesses of its own selection. An expert witness shall not be appointed by the court unless the witness consents to act. A witness so appointed shall be informed of the witness' duties by the court in writing, a copy of which shall be filed with the clerk, or at a conference in which the parties shall have opportunity to participate. A witness so appointed shall advise the parties of the witness' findings, if any; the witness' deposition may be taken by any party; and the witness may be called to testify by the court or any party. The witness shall be subject to cross-examination by each party, including a party calling the witness.

(b) Compensation. Expert witnesses so appointed are entitled to reasonable compensation in whatever sum the court may allow. The compensation thus fixed is payable from funds which may be provided by law in criminal cases and civil actions and proceedings involving just compensation under the fifth amendment. In other civil actions and proceedings the compensation shall be paid by the parties in such proportion and at such time as the court directs, and thereafter charged in like manner as other costs.

(c) Disclosure of appointment. In the exercise of its discretion, the court may authorize disclosure to the jury of the fact that the court appointed the expert witness.

(d) Parties' experts of own selection. Nothing in this rule limits the parties in calling expert witnesses of their own selection.

* * * *

Rule 1101

Applicability of Rules

(a) Courts and judges. These rules apply to the United States district courts, the District Court of Guam, the District Court of the Virgin Islands, the District Court for the Northern Mariana Islands, the United States courts of appeals, the United States Claims Court, and to United States bankruptcy judges and United States magistrate judges, in the actions, cases, and proceedings and to the extent hereinafter set forth. The terms "judge" and "court" in these rules include United States bankruptcy judges and United States magistrate judges.

(b) Proceedings generally. These rules apply generally to civil actions and proceedings, including admiralty and maritime cases, to criminal cases and proceedings, to contempt proceedings except those in which the court may act summarily, and to proceedings and cases under title 11, United States Code.

(c) Rule of privilege. The rule with respect to privileges applies at all stages of all actions, cases, and proceedings.

(d) Rules inapplicable. The rules (other than with respect to privileges) do not apply in the following situations.

(1) Preliminary questions of fact. The determination of questions of fact preliminary to admissibility of evidence when the issue is to be determined by the court under rule 104.

(2) Grand jury. Proceedings before grand juries.

(3) Miscellaneous proceedings. Proceedings for extradition or rendition; preliminary examinations in criminal cases; sentencing, or granting or revoking probation; issuance of warrants for arrest, criminal summonses, and search warrants; and proceedings with respect to release on bail or otherwise.

* * * *

B. FEDERAL RULES OF CIVIL PROCEDURE

Rule 1

Scope and Purpose of Rules

These rules govern the procedure in the United States district courts in all suits of a civil nature whether cognizable as cases at law or in equity or in admiralty, with the exceptions stated in Rule 81. They shall be construed and administered to secure the just, speedy, and inexpensive determination of every action.

* * * *

Rule 56

Summary Judgment

(a) For Claimant. A party seeking to recover upon a claim, counterclaim, or cross-claim or to obtain a declaratory judgment may, at any time after the expiration of 20 days from the commencement of the action or after service of a motion for summary judgment by the adverse party, move with or without supporting affidavits for a summary judgment in the party's favor upon all or any part thereof.

(b) For Defending Party. A party against whom a claim, counterclaim, or cross-claim is asserted or a declaratory judgment is sought may, at any time, move with or without supporting affidavits for a summary judgment in the party's favor as to all or any part thereof.

(c) Motion and Proceedings Thereon. The motion shall be served at least 10 days before the time fixed for the hearing. The adverse party prior to the day of hearing may serve opposing affidavits. The judgment sought shall be rendered forthwith if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law. A summary

judgment, interlocutory in character, may be rendered on the issue of liability alone although there is a genuine issue as to the amount of damages.

(d) Case Not Fully Adjudicated on Motion. If on motion under this rule judgment is not rendered upon the whole case or for all the relief asked and a trial is necessary, the court at the hearing of the motion, by examining the pleadings and the evidence before it and by interrogating counsel, shall if practicable ascertain what material facts exist without substantial controversy and what material facts are actually and in good faith controverted. It shall thereupon make an order specifying the facts that appear without substantial controversy, including the extent to which the amount of damages or other relief is not in controversy, and directing such further proceedings in the action as are just. Upon the trial of the action the facts so specified shall be deemed established, and the trial shall be conducted accordingly.

(e) Form of Affidavits; Further Testimony; Defense Required. Supporting and opposing affidavits shall be made on personal knowledge, shall set forth such facts as would be admissible in evidence, and shall show affirmatively that the affiant is competent to testify to the matters stated therein. Sworn or certified copies of all papers or parts thereof referred to in an affidavit shall be attached thereto or served therewith. The court may permit affidavits to be supplemented or opposed by depositions, answers to interrogatories, or further affidavits. When a motion for summary judgment is made and supported as provided in this rule, an adverse party may not rest upon the mere allegations or denials of the adverse party's pleading, but the adverse party's response, by affidavits or as otherwise provided in this rule, must set forth specific facts showing that there is a genuine issue for trial. If the adverse party does not so respond, summary judgment, if appropriate, shall be entered against the adverse party.

(f) When Affidavits are Unavailable. Should it appear from the affidavits of a party opposing the motion that the party cannot for reasons stated present by affidavit facts essential to justify the party's opposition, the court may refuse the application for judgment or may order a continuance to permit affidavits to be obtained or depositions to be taken or discovery to be had or may make such other order as is just.

(g) Affidavits Made in Bad Faith. Should it appear to the satisfaction of the court at any time that any of the affidavits presented pursuant to this rule are presented in bad faith or solely for the purpose of delay, the court shall forthwith order the party employing them to pay to the other party the amount of the reasonable expenses which the filing of the affidavits caused the other party to incur, including reasonable attorney's fees, and any offending party or attorney may be adjudged guilty of contempt.

C. STATE RULES OF EVIDENCE

Alaska Rule of Evidence 702

TESTIMONY BY EXPERTS

(a) If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

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Arizona Rule of Evidence 702

Testimony by Experts

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Arkansas Rule of Evidence 702

TESTIMONY BY EXPERTS

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Colorado Rule of Evidence 702

TESTIMONY BY EXPERTS

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Delaware Rule of Evidence 702

TESTIMONY BY EXPERTS.

If scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training or education may testify thereto in the form of an opinion or otherwise.

Florida Statutes § 90.702

Testimony by experts.

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion; however, the opinion is admissible only if it can be applied to evidence at trial.

Hawaii Rule of Evidence 702

Testimony by Experts

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise. In determining the issue of assistance to the trier of fact, the court may consider the trustworthiness and validity of the scientific technique or mode of analysis employed by the proffered expert.

Idaho Rule of Evidence 702

Testimony by experts.

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an

expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Indiana Rule of Evidence 702

TESTIMONY BY EXPERTS

(a) If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

(b) Expert scientific testimony is admissible only if the court is satisfied that the scientific principles upon which the expert testimony rests are reliable.

Kentucky Rule of Evidence 702

Testimony by experts

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Louisiana Code of Evidence, Article 702

Testimony by experts

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Maine Rule of Evidence 702

TESTIMONY BY EXPERTS

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training or education may testify thereto in the form of an opinion or otherwise.

Michigan Rule of Evidence 702

TESTIMONY BY EXPERTS

The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. The court may require that underlying facts or data essential to an opinion or inference be in evidence.

Minnesota Rule of Evidence 702

TESTIMONY BY EXPERTS

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training or education, may testify thereto in the form of an opinion or otherwise.

Missouri Revised Statutes § 490.065

Expert witness, opinion testimony admissible —hypothetical question not required, when

1. In any civil action, if scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education may testify thereto in the form of an opinion or otherwise.

* * * *

Montana Rule of Evidence 702

TESTIMONY BY EXPERTS

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Nebraska Rule of Evidence 702

TESTIMONY BY EXPERTS; WHEN

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Nevada Revised Statutes Annotated § 50.275

Testimony by experts

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by special knowledge, skill, experience, training, or education, may testify to matters within the scope of such knowledge.

New Hampshire Rule of Evidence 702

TESTIMONY BY EXPERTS

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

New Jersey Rule of Evidence 702

Testimony by Experts.

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

New Mexico Rule of Evidence 702

Testimony by Experts

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

North Carolina Rule of Evidence 702

Testimony by Experts

(a) If scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion.

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North Dakota Rule of Evidence 702

TESTIMONY BY EXPERTS

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Ohio Rule of Evidence 702

Testimony by Experts

A witness may testify as an expert if all of the following apply:

(A) The witness' testimony either relates to matters beyond the knowledge or experience possessed by lay persons or dispels a misconception common among lay persons;

(B) The witness is qualified as an expert by specialized knowledge, skill, experience, training, or education regarding the subject matter of the testimony;

(C) The witness' testimony is based on reliable scientific, technical, or other specialized information. To the extent that the testimony reports the result of a procedure, test, or experiment, the testimony is reliable only if all of the following apply:

(1) The theory upon which the procedure, test, or experiment is based is objectively verifiable or is validly derived from widely accepted knowledge, facts, or principles;

(2) The design of the procedure, test, or experiment reliably implements the theory;

(3) The particular procedure, test, or experiment was conducted in a way that will yield an accurate result.

12 Oklahoma Statutes § 2702

Testimony by Experts

If scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Oregon Evidence Code § 240.410, Rule 702

Testimony by Experts

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Rhode Island Rule of Evidence 702

Testimony by experts.—If scientific, technical, or other specialified knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of fact or opinion.

South Carolina Rule of Evidence 702

Testimony by Experts

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training or education may testify thereto in the form of an opinion or otherwise.

South Dakota Codified Laws § 219-15-2, Rule 702

Opinions of Experts Admissible

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Tennessee Rule of Evidence 702

Testimony by Experts

If scientific, technical, or other specialized knowledge will substantially assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise.

Texas Rule of Civil Evidence 702

TESTIMONY BY EXPERTS

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training or education, may testify thereto in the form of an opinion or otherwise.

Utah Rule of Evidence 702

Testimony by experts.

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Vermont Rule of Evidence 702

TESTIMONY BY EXPERTS

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Washington Rule of Evidence 702

Testimony by Experts

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

West Virginia Rule of Evidence 702

Testimony by Experts

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Wisconsin Statutes § 907.02

Testimony by experts.

If scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Wyoming Rule of Evidence 702

Testimony by Experts

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill experience, training, or education, may testify thereto in the form of an opinion or otherwise.